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February 2017



INTERVIEW WITH:

**Simon Kos**

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*Welcome*  
to the February  
2017 edition of  
**Business Review**  
**USA & Canada.**

**THIS MONTH KICKS** off with an exclusive interview with the Founder and CEO of JOOR, the innovative online wholesale marketplace serving some of the most luxurious brands in the fashion industry.

Also featured is an intimate look at the newly-merged Dell EMC, with insights from Cloud Business Director Rob Lamb, who describes how the two companies came together so successfully and what's next for the technology giant.

This month's top 10 focuses on a topic which is increasingly in the public eye – American electric car companies, and our February profiles are in-depth interviews with Microsoft Health, YMCA of Greater Cincinnati, and more.

Enjoy this issue, and join in the conversation on Twitter:

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*Neil Walker*

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# CONTENTS

## FEATURES

LIDERAZGO

08



Fashion forward

TECNOLOGÍA

16

Dell EMC  
making history



TOP 10

26

TOP 10  
US ELECTRIC  
CAR COMPANIES



54

YMCA of Greater Cincinnati



66

Cubic transportation Systems



# COMPANY PROFILES

## TECHNOLOGY

**36** Microsoft health

**54** YMCA of Greater Cincinnati

**66** Cubic transportation Systems

**80** DTT Surveillance

**90** MV Transportation

## CONSTRUCTION

**104** ACCIONA

**118** Nebraska Department of Roads

**130** Expedient



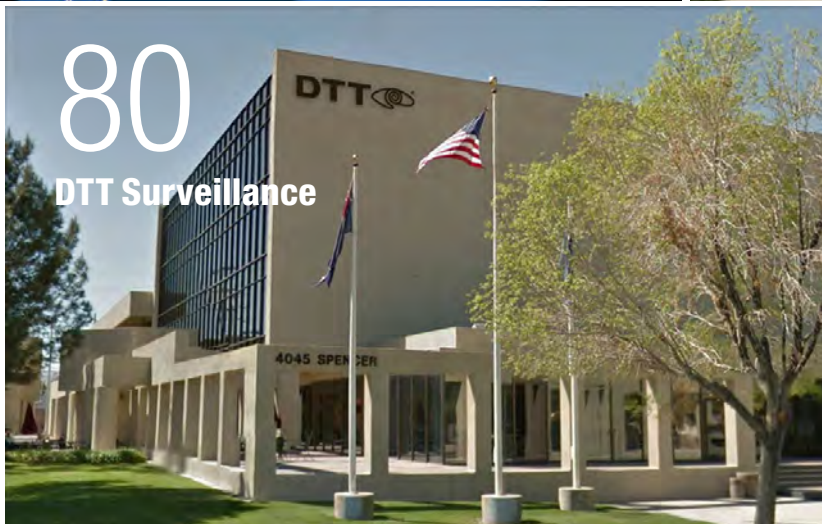
# 36

Microsoft health



# 130

Expedient



# 80

DTT Surveillance



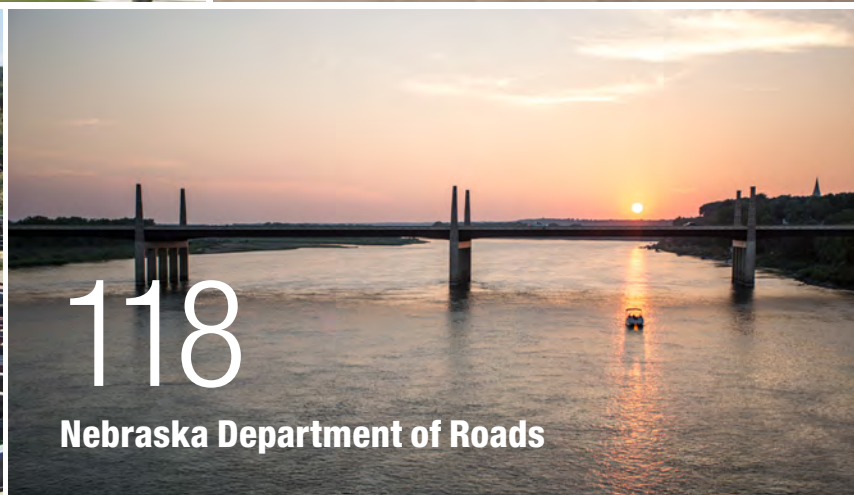
# 90

MV Transportation



# 104

ACCIONA



# 118

Nebraska Department of Roads

# JOOR

## Fashion-forward

Business Review USA & Canada  
takes a glimpse into the mind of JOOR  
CEO Mona Bijoor, and her company's  
unique fashion industry app

Written by: **NELL WALKER**





**Mona Bijoor**

**EVERY SO OFTEN** a company comes along which truly fills a gap in the market – online wholesale marketplace JOOR is one of them.

In 2011, founder and CEO Mona Bijoor decided to streamline the predominantly offline business processes of brands and retailers, and developed a way to allow them to interact simply and effectively. The system previously operated through trade shows and showroom environments, and Bijoor, having formerly worked on the brand side of fashion, knew the pain of this inefficiency all too well.

“I was a seller and then a buyer before JOOR, and all of my buying and selling happened on the phone, via e-mail, or even fax,” she explains with a laugh. “It involved a lot of manual administrative work and communication issues, and made it difficult to make sense of what was working and what wasn’t from a product perspective.”

As a seller, Bijoor worked for big names in the luxury fashion sector such as Chanel and Elie Tahari, then moving on to Ann Taylor and Destination Maternity as a buyer. “This business,” she explains, “really

personifies the personal pain I experienced in those roles. The real reason why brands and retailers join JOOR is because they get a lot of analytics and real-time reporting on what are the best sellers and worst sellers, and that is the real value-add.”

As JOOR is the manifestation of everything Bijoor wanted and needed in previous job roles, she and her team have worked – and continue to work – hard on the development of the app. Usability and simplicity are top priority for JOOR, as well as an unparalleled level of customer personalization. Bijoor puts herself in her clients’ shoes to work out what would frustrate her as a user, and focuses on making the app as intuitive as possible.

“We’re getting better and better at ease of use all the time,” she explains. “This is a challenging business because in wholesale, there’s a lot of back and forth in orders where styles get cancelled or prices change, so making sure the app is instinctual is really important.

“Essentially it’s a virtuous cycle. We spent a lot of time in the beginning years focused on signing high-quality brands, which forced retailers to join because brands wanted to





**“Brands and retailers join JOOR because they get a lot of analytics and real-time reporting on what are the best sellers and worst sellers, and that is the real value-add”**

**– Mona Bijoor, CEO**



# ACROSS THE BOARD WE ASK FOR FEEDBACK, SO WE CAN ALWAYS IMPROVE

– Mona Bijoor, CEO

flow all their volume through the system. Then we hit critical mass around key brands, and now retailers are the ones forcing brands to join because we offer them software which helps them fulfil their needs. So we just continue on that virtuous cycle through offering really good products which make them smarter and faster around their business.”

What differentiates JOOR from potential competitors is that the company focuses on driving the fashion ecosystem, rather than simply making the ordering process easier. JOOR intends to own the luxury space before entering a new vertical, at which point it will chase the appropriate brands and corresponding retailers,

with the experience and client base behind it to hold a great deal of sway.

With regard to future planning, JOOR maintains a 24-month roadmap with a dedicated product team which looks at the roadmap and ensures everything is prioritized, whether it drives transaction volume to the system or the ability to take on new verticals. It ensures JOOR has a consistently clear vision of what it wants to achieve over the next two-to-three years.

“Priorities change all the time,” Bijoor says. “We ask ‘is this feature universal? Will it benefit the majority of our brands? Will it drive transaction volume through the system? Will it drive revenue to the business?’ At that





point we have the ability to roll out a feature to a certain set of clients, then we can make the right decision.”

To track the success of its technology, JOOR puts a lot of metrics in place in order to analyze usage and adoption rates of the app, ensuring it can always test, tweak, and modify features to suit the user. Bijoor’s goal on the product side is to achieve at least a 60-70 percent adoption rate across brands and retailers. On the customer satisfaction side, JOOR meets with brands quarterly for check-ins, and releases surveys to the brands and

retailers requesting feedback on clients’ service, product performance, and JOOR’s support. “Across the board we ask for feedback so we can always improve,” says Bijoor.

It’s irresistible to conclude by asking somebody like JOOR’s founder how – if at all – being a female CEO in the technological sector has impacted her and the business, and she responds by being pleasingly unconcerned about the potentially inflammatory subject.

“There are a lot of biases in the world and you can’t spend your time focused on why something didn’t

**“I go out of my way  
to remind them that  
girls are smart and  
hard-working, and  
now my kids see  
NO DIFFERENCE  
between genders”**

– Mona Bijoor, CEO



happen,” she explains. “You don’t know what peoples’ biases are, so I don’t think about them. I don’t feel like I’ve had any barriers to building the business because I’m a woman. I don’t deny there are issues there, but I choose not to pay homage to it.”

Whether or not this subject has affected Bijoor personally, she did make the conscious decision to send her two young daughters to a STEM—based school. It is a proven fact that girls veer from the technology and science sectors at around the fourth grade, when they become insecure in their interests and are discouraged from pursuing male-dominated subjects, and Bijoor does not want her children to follow this trend.

“I go out of my way to remind them that girls are smart and hard-working, and now my kids see no difference between genders,” says Bijoor. “They believe that anybody can be smart if they study, and that’s how I see it too – if I do my duty, and work hard, then results will come.” ■

JOOR   

**TECHNOLOGY**

# Dell EMC making history

Business Review USA & Canada speaks to Dell EMC about the biggest merger in the industry, and the company's technological and green impact

Written by: **NELL WALKER**





**DELL** EMC





*Rob Lamb,  
Cloud  
Business  
Director at  
Dell EMC*

**ON SEPTEMBER 7** 2016, history was made when Dell and EMC merged in what has been named the biggest ever acquisition in the technology sector. Dell declared its intention to make the purchase in October 2015, paying a huge \$67 billion in cash and stock, or \$24.05 per EMC share.

The two companies had worked together since 2001 when a strategic partnership was formed for Dell to sell EMC storage products, a relationship which later expanded to the combination of complementary technologies. This is a merger which has been 15 years in the making, and while naysayers and competitors were sure that business for both Dell and EMC would suffer during the almost year-long deal

**We've**  
*maintained*  
**a mantra of**  
**'CUSTOMER FIRST'**

– Rob Lamb, Cloud Business Director at Dell EMC

negotiations – even falsely communicating into the market that production for both companies had ground to a halt – they were proven wrong.

“Obviously when you’re combining two organizations of this size and scale, there’s a risk as you come together that you’ll lose focus,” says Rob Lamb, Cloud Business Director at Dell EMC. “So from the time that the deal was announce, through to it formally closing on September 7, and once the integration is complete on February 1 2017, we’ve maintained a mantra of ‘customer first’, ensuring we don’t do anything that’s going to disrupt our interactions and engagement with them. If we get distracted, our customers suffer.”

According to Lamb, despite the inherent disorder involved in merging two businesses, getting in front of the product road maps remained the priority. Most importantly, Dell EMC ensured that engineering teams continued to push the research and development agenda,





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“The intention is to continue that level of spend,” says Lamb, “but that takes planning and effort to ensure we’re not confusing the customer or the large sales force. It’s hard work, but if you look to the day the deal closed on September 7, we also overtook HPE as the largest provider of servers worldwide. People were thinking we’d get distracted by the deal, when actually we took market leadership in one of our core products. That gives you a feel for how maniacally focused

we are on making sure we’re not disrupting the flow of business.

“You’ve only got to look at the Gartner Magic Quadrant and our market shares to realize whilst we’re working on a number of parallel streams, we’re making sure they’re all delivering to one aim.”

Lamb is on his third career path with IT, having previously tried out life as a military police officer and a farm manager. Prior to Dell EMC he was on the client side of IT for 13 years, and now he brings that experience with him as a former EMC legacy member.



## Sustainable materials used in FY16



Recycled carbon fiber:  
(source: manufacturing waste)

**170** thousand  
pounds  
for laptops



Closed-loop recycled plastics:  
(source: old electronics)

**3.4** million  
pounds  
for desktops, displays



Recycled plastic:  
(source: water bottles, CD cases)

**10.7** million  
pounds  
for desktops, displays

“There’s a reason my hair is this color,” Lamb wryly states. “Unless you’ve been around the block a bit there are a lot of mistakes you can make, particularly as we move into digital transformation and the era of cloud computing where we are now.”

One of the reasons Lamb and his team at Dell EMC have handled all of the changes so well is the company-wide ethic of positivity and employee care both companies are known for. Each carries this culture, and EMC has been a participant for many years of the Great Place to Work scheme.

Dell, too, has long had a family-centric culture and began expanding its Connected Workplace program to encourage flexible working. Both have combined to create the best possible environment for staff.

“In 2016 Dell completed a study of employees, speaking to over 1,000 in the US, finding out how many remote work days they were taking per month as well as commute distances,” Lamb explains. “We looked at the data to see what improvements we could make, and by encouraging remote working we estimate that we’ve saved over



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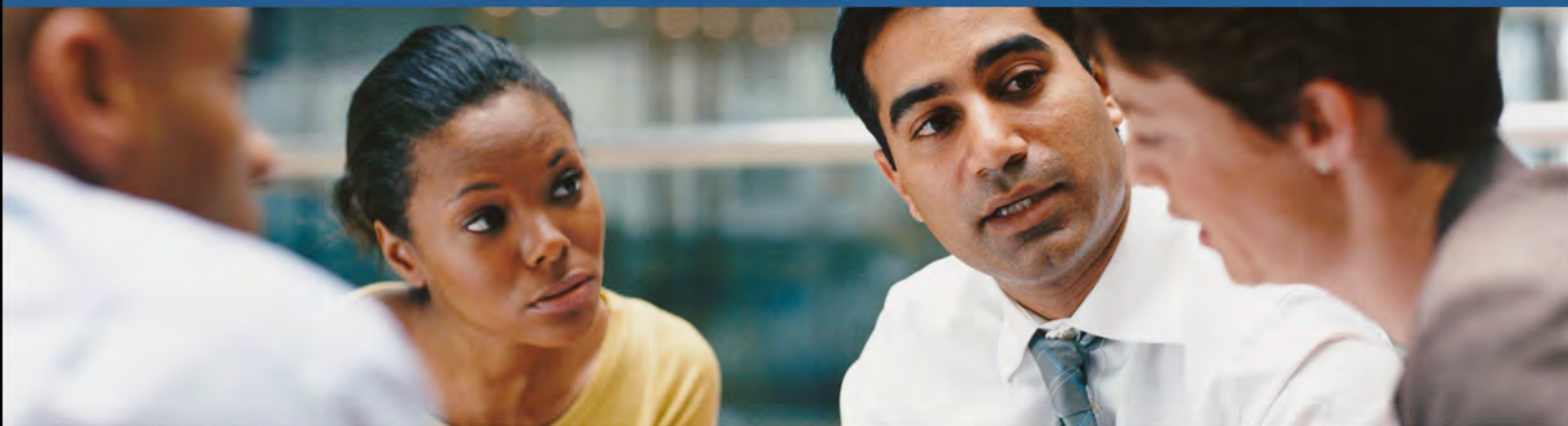
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\$12 million in fuel costs and avoided around 136 million miles of travel per year. We don't force people into an office if they don't need to be there.

"People assume that a large company like this will be an aggressive place to work, but I've been here for six years and there's such a positive atmosphere at Dell EMC, hence the culture of it being a great place to work."

You may be forgiven for thinking that a business of this size – before or after the merger – would be resistant to moving with the times. On the contrary, one of the largest global concerns of the past decade – sustainability – is high on Dell EMC's priority list. Both companies have historically held a key role in moving towards a low-carbon economy, and Michael S. Dell (Dell CEO) in particular has always been instrumental in driving sustainable business practices.

"These products don't have a finite life cycle in terms of how our customers buy them and depreciate

them," Lamb explains. "They can have a long-term impact if you're not looking to recycle them at the end of their lives, which means producing them as effectively and efficiently as possible.

"Looking back at when Michael started producing PCs, when Dell was purely a PC company, he always set out to ensure that the computers were

easily recycled; that philosophy has been driven through both sides of the business as we came together. That's how you retain a high green ranking like ours. Heritage Dell reduced the energy intensity that it takes to create the product portfolio by 43 percent since 2011. Heritage EMC, at its Centre of Excellence in Ireland,

achieved 100 percent renewable energy in 2015. Dell EMC aims to source 50 percent of its electricity from renewable sources by 2020. These are really impactful statistics."

It's not just the manufacturing process which helped Dell EMC achieve its impressive green ranking,

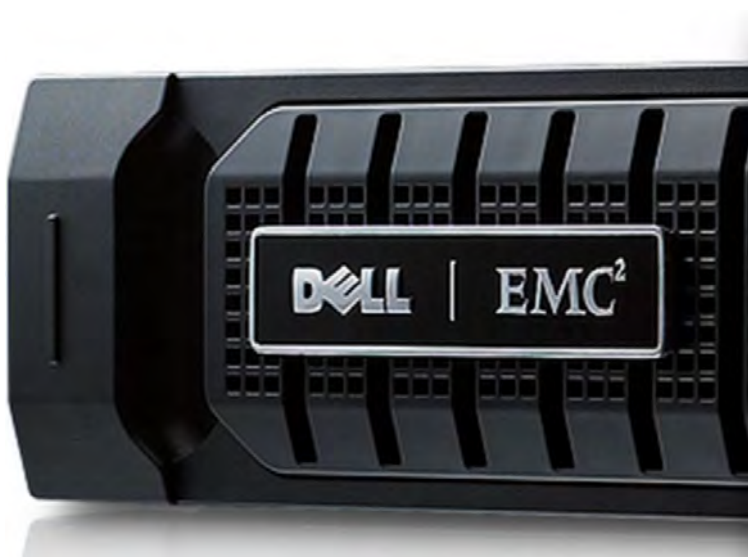
**"There's such a positive atmosphere at Dell EMC, hence the culture of it being a great place to work"**

– Rob Lamb, Cloud Business Director at Dell EMC



**“Combining the expertise of heritage Dell and heritage EMC means we have a significant influence on social and environmental responsibility across the IT sector”**

– Rob Lamb, Cloud Business Director  
at Dell EMC



but making small changes to its data centers has made an incredible difference too. Small elements such as switching from fluorescent light tubes to LEDs, upgrading air conditioning and building management systems, and improving the plant machinery itself to ensure it's as efficient as possible have all positively impacted the company's energy consumption.

“One of our newest examples is a data center in North Carolina, which was commissioned in 2012, and has flywheels rather than batteries,” says Lamb. “They sit under the floor spinning away and building up energy, meaning that in the event that the power fails, batteries aren't required. From a sustainability perspective, batteries are pretty harmful to dispose of, but the flywheels provide short-term power before standby generators kick in.”

And this kind of power reliability is important for Dell EMC's customers, for whom information loss is a major concern when choosing a data center provider. In Lamb's words, “2015 and 2016 have been the years of the data breach,” with some high-profile companies suffering the consequences. However, the cause

of the vast majority of such issues has been human error within private cloud environments, meaning pockets of vulnerability are left open for hackers.

“All of our partners hold a significant number of recognized compliance and security standards,” Lamb affirms. “You’ve got to have and maintain that level of security to reassure customers, particularly when dealing with regulated industries. You can’t afford for people to lose faith. We’ve learnt from our time in the industry that you actually need to be moving away from the traditional model of hoping standard protections are going to keep the bad guys out, because they won’t.”

Differentiating itself from competitors is one of Dell EMC’s biggest successes, and rejection of the traditional is part of that. Focusing on R&D, energy efficiency, and maintaining a positive working environment remain key to the company’s triumph, and merger or not, Dell EMC has not lost focus on the most important elements of its business.

“Combining the expertise of heritage Dell and heritage EMC means we have a significant influence on social and environmental responsibility across the IT sector,” Lamb concludes. “From our perspective, it’s an exciting time.” ■



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TOP 10

TOP  
10

**US electric  
car companies**



# *We list 10 of the best American electric car companies*

Written by: **NELL WALKER**





**PROBABLY THE WORLD'S** most famous car company, Ford began dabbling in hybrid vehicles in 2004, when it entered into a patent share with Toyota that allowed the former access some of Toyota's hybrid technology. The Escape Hybrid was released the same year, and as of a decade later, Ford had created four all-electric plug-in vehicles: the Ford Ranger EV, Ford THINK, Transit Connect, and Ford Focus Electric (which is still in production). In October 2015, the number of Ford plug-in electric vehicles sold reached just over 56,000. ■



Ford Focus



### SAN FRANCISCO-BASED LIT

Motors creates lightweight two-wheeled gyroscopically-balanced vehicles. The company focuses heavily on innovation, breaking boundaries until the company's founder, Daniel K. Kim, designed the C-1. Despite the fact that the company has spent the last few years pushing release dates back further and further, Kim and his team insists that they are continuing to work on both the C-1 and the newer cargo scooter, Kubo, until they are eventually released to the public. ■







Might-E

8

**THIS BRITISH COLUMBIAN**

company was created in 1995 and began designing and creating parts that would convert traditional engines to battery-powered ones. The business converted all manner of vehicles from internal combustion to electric. Canadian Electric Vehicles is now best known for its electric-powered aircraft refueling trucks it originally designed for Los Angeles airport, which are used all over the world. ■



7

**FISKER AUTOMOTIVE**

**CREATED** the Fisker Karma, which was among the first production plug-in hybrid electric vehicles. The private corporation was founded in 2007, and over 2,000 Karmas have been sold worldwide since their debut in 2011. Fisker's battery supplier, A123 Systems, went bankrupt in 2013, leading Fisker to sell its designs and assets to Wanxiang Group. Wanxiang started Karma Automotive, and now produces a luxury electric hybrid sedan based on the Karma. ■



Fisker Karma







**PREDOMINANTLY A MODIFICATION** company, the Utah-based VIA Motors buys up standard vehicles from GM to convert them to electric ones, selling to fleets under its VTRUX brand. Having tested the vehicles within fleets, VIA began taking orders from private customers for its award-winning trucks in 2014, just four years after its inception. ■



Chevrolet Bolt EV

**AMAZINGLY, GM WAS** developing all-electric vehicles as far back as 1990 – the first car company to do so – but every such car GM produced across the 90s was leased rather than sold, and eventually returned to the company, leading to a dip in customer faith. GM has since redeemed itself, however, blazing a trail with hybrid and flexible-fuel vehicles, and finally releasing an affordable all-electric car – the Chevrolet Bolt EV – in 2016. ■

eREV







**AEROVIRONMENT, BASED**

**IN** California, has been working on electric vehicle systems since 1971. In 1990, the company created the system for GM’s flagship all-electric Impact, which was intended to be a mass-produced car, but was discontinued nine years later. AeroVironment has seen more success with its 240V home-charging electric vehicle stations, which Nissan chose for use on its Leaf models. ■



WHITE

LiFe

**WHEEGO FORMED IN** 2009 as an offshoot of Rough and Tuff Electric Vehicles, going on to produce the Wheego Whip and the Wheego LiFe. The former is a two-seater low-speed car, whereas the latter is suitable for highway use with a top speed of 65 MPH. Marketed as a commuter car, the LiFe retails at £32,995 in the US, Caribbean, and Japan. ■







**CALIFORNIAN ELECTRIC CAR** company, Tesla, is perhaps the most famous of its kind in the world. Eccentric CEO Elon Musk is focused on the development of battery-powered cars which use thousands of small lithium-ion cells rather than more common large cells. As of September 2016, Tesla has sold over 164,000 electric cars since 2008, and the company is currently ironing out any remaining kinks in its AutoPilot function in another step towards full autonomy. ■



FFZERO1



**THIS STARTUP WAS** established in 2014 and has made a huge impact on the industry in a very short space of time. It plans to launch its first fully-electric vehicle this year, and to branch out into autonomous driving in the future; the company has been granted permission to test self-driving vehicles in California. It has been predicted by Motor Trend that Faraday Future's electric car will have 15 percent higher specific energy than Tesla's Model S, among other features which are arguably an improvement on Tesla. ■



Model S



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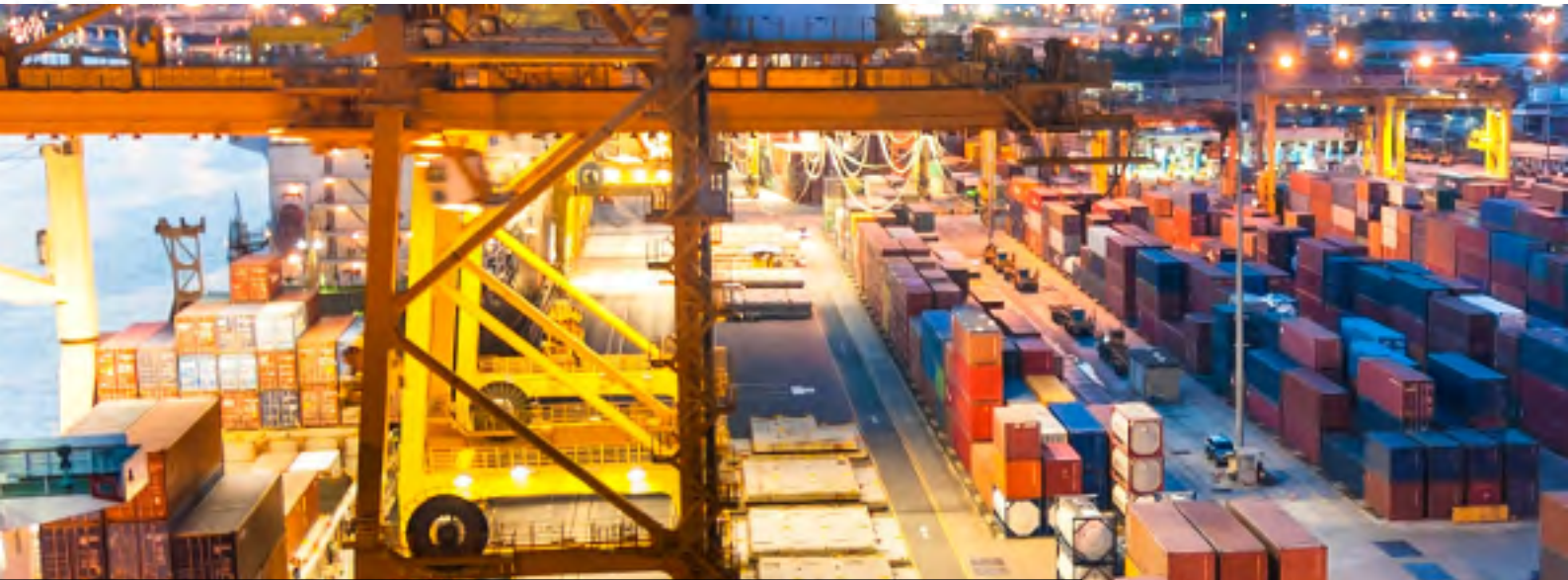


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# THE CFO IN AN AGE OF DISRUPTION

The speed at which tech companies are growing in today's Venture Capital driven market is astounding, with some taking just a couple of years to reach unicorn status. Slack, Groupon, Akamai Technologies, and Xiaomi all gained their \$1 billion valuation within two years, according to research firm Pitchbook, and many others are doing so in little longer.

For CFOs, this presents an entirely new challenge. They require a different set of skills to their counterparts at companies with less aggressive growth, combining financial acumen with a broader business knowledge and strong entrepreneurial mindset in such a way that is capable of balancing growth and profitability in an extremely fluid business environment, often riddled with uncertainty and prone to rapid change.

Traditionally, the CFO's primary responsibility is to manage risk. In a hyper-growth company, this is no longer the case. While they are still expected to give risk due consideration and be the boardroom realist, so to speak, they also need to be more of an optimist than they would otherwise be in order to get behind the kind of innovative, even unproven, endeavors that need to be taken in order to achieve hyper growth, and offer strategic guidance around how to approach these. They need to look for

opportunities to scale and identify when resources are needed quickly before the company outgrows its capacity.

It is not just the CFO themselves who is required to offer strategic guidance, they need to ensure their team is made of people who embody the same qualities and can also contribute to the company's overall strategy. The whole team needs customer-first tack should be taken, emphasising what the right thing to do is with customers to align finance with the rest of the business team in the first place, before explaining the financial imperatives. This kind of mindset can be instilled, or hired, by recruiting finance professionals with diverse employment backgrounds, or it can be achieved by rotating employees around a variety of roles, and perhaps even different departments.

One of the main pressures on CFOs in hyper-growth companies is providing strong numbers in the short term. They need the strength of character not to bow to such pressure and instead make decisions that ensure they are investing in the long term potential of their organization. They need to be capable of persuading shareholders that the long option is the better choice, even if it means revenue may be damaged in the short term.

While finance teams need to be an

## THE CFO IN AN AGE OF DISRUPTION (CONTINUATION)

integral part of the business, it is also a good idea to take up an autonomous position, acting as a business influencer rather than a centralized function. In a hyper growth company, agility is key, and you are often not sharing financial information with FP&A analysts but product owners, most of whom are not from financial backgrounds. This means education is paramount, empowering product owners to conduct FP&A for themselves. We recently spoke to Skyscanner, one of the fastest growing companies of the last decade, who place a great deal of emphasis on ensuring their product owners have a good idea of how what they're doing is impacting the business model. For example, when making a change to the product, they need to know whether it is driving more exits, if it's driving more revenue, and so forth. They aim to provide a product owner with sufficient level of commercial awareness to do this. Their FP&A team then starts to shift ownership out to them entirely, leaving them alone to monitor their information and performance. Once this is achieved and each 'squad', as they call their product teams, has the necessary knowledge and ownership, they can conduct 1000s of tests around everything they do, enhancing their agility and speed of processes. It also gives the FP&A team the ability to

approach everything from a macro view. This drives the product, growth and performance, generates insight, and gives them visibility of what each squad could be doing to learn from one another and ensuring that they are doing it.

Not all CFOs are cut out for financial leadership at a hyper-growth organization, and it is an exceptionally challenging job. It is also highly varied and often rewarded, with huge potential for career growth. At the CFO Rising East Summit, taking place at the Westin Waterfront in Boston this March 22-23, more than 30 industry leading speakers will share insights drawn from their wealth of experience to help finance leaders to meet these challenges. Among the speakers will be CFOs from Yahoo and Audi, eBay's COO of Finance, and the VP of finance at Dreamworks Animation. They will show not only how finance leaders can manage in a time of high growth, but to become a driver themselves as a strategic partner to the CEO in their organization.

To register to the CFO Rising East Summit in Boston, please contact Elliott Jay (+1 415 800 4713) or [ejay@theigroup.com](mailto:ejay@theigroup.com) and don't forget to quote BR20 to save 20% on two-day passes. ■



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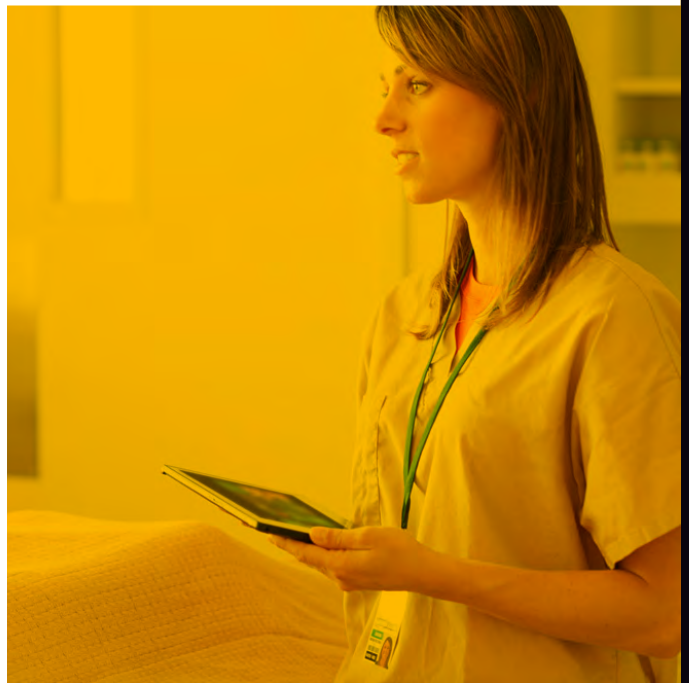




# *THE HEALTHCARE Revolutionaries*

*We go behind the scenes to see  
how Microsoft is transforming  
the medical industry*

Written by **Catherine Rowell**  
Produced by **David Kulowitch**



Microsoft is best known for its key role in the computing revolution. Less well known is the role Microsoft plays today in the health industry, but a similar revolution is underway and once again the company is at the center. Responsible for helping customers and partners navigate that change is Dr. Simon Kos, chief medical officer. What is a doctor doing working for a technology company? “No, I don’t provide medical services to employees!” Kos quips.

Whilst practicing critical care medicine in Australia, he saw firsthand just how fragmented information in healthcare was, and recognised the risk that posed to patient care. An interest in technology became a career as Kos explored first Electronic Medical Record (EMR) systems, then later a much broader

portfolio as he ran the health division for Microsoft Australia. His current role might be different in scope and scale, but the industry challenges remain. “Digital transformation is underway all around us, and will dramatically change how we deliver and receive health services.”

### **A time of change**

Health today is at an inflection point. On the one hand, standard operating procedures and a risk averse culture foster predictable, high quality care. On the other however, healthcare costs are unsustainable and new models of care are required, largely to address the increased burden of chronic disease in our modern society. This paradox – an industry resistant to change that fundamentally needs to reinvent itself – is playing out across the

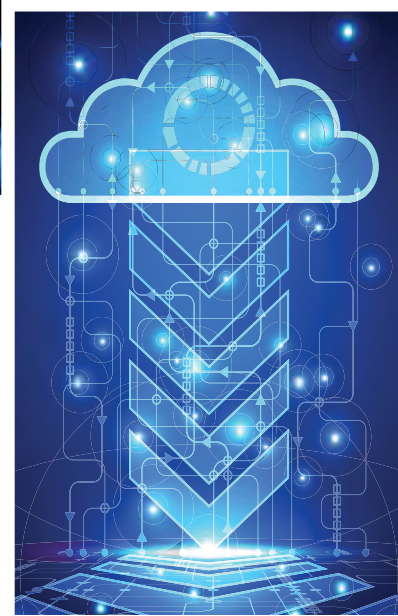




# ENABLING MEDICAL ADVANCES IN THE CLOUD

Today's technological breakthroughs are changing how we live. We see it every day and know what's coming – driverless cars, reusable rockets, 3D printing. Advances are changing medicine as well. For example, recent breakthroughs in medical imaging can isolate tiny anomalies long before they become life threatening.

Although imaging technology has advanced, a physician's ability to access and collaborate on the images has not, and the situation is exacerbated as imaging files grow in size and complexity. The problem is that today's enterprise image management technology is already a decade or two old – introduced long before the cloud – and is not designed for speed, mobility or the latest imaging files. This undermines our clinicians' abilities to fully leverage the advances in imaging. Cloud technology can harness the breakthroughs in medical imaging



and it delivers what physicians need most: speed, access and collaboration. It can engage patients and get them more involved in their care. And it provides a secure and cost-effective way to relieve the strain on enterprise systems.

As I see it, back-end cloud technologies can now keep up with the front-end excitement. And unlike enterprise technologies, where decisions to buy are capital intensive and all-or-nothing bets, a health system can choose to deploy the cloud for image management when and where they need it most. In essence, one can simply “tiptoe into the cloud” to enable advances in medical imaging.

- **Chris Hafey**



**Chris Hafey is Chief Technology Officer at NucleusHealth™** – a leading technology firm developing and deploying powerful, proprietary solutions to manage medical images in the cloud for fast and secure access using any web enabled device and modern browser. To learn more about NucleusHealth or our nucleus.io™ technology, visit us at [www.nucleushealth.io](http://www.nucleushealth.io) or [www.nucleus.io](http://www.nucleus.io). You can reach Chris at [info@nucleushealth.io](mailto:info@nucleushealth.io).



globe. “The Microsoft health vertical is substantial, with over 168,000 health customers and an estimated 30,000 partners, we have a broad base for telemetry.” Kos explains.

Central to the Microsoft business model is the concept of partnership. “We essentially have two core functions. Engineer high quality, interoperable software platforms, and support partners who use those platforms to create solutions.” Kos rationalizes. He goes on to note that it is common for health organizations to have thousands of applications in their technology portfolio, and an ecosystem approach is required to manage information effectively.

This aggregate view allows Microsoft to spot emerging technology trends, view cutting-edge innovation, and disseminate best-practice. He goes on to say “Healthcare IT has historically been focused on automation through systems of record, like the EMR. That’s an important step, but just the start of the journey. Unlocking value through systems of insight, collaboration and innovation is where transformation occurs.”

## Digital transformation

So, if the EMR isn’t the end-state, what does digital transformation look like in health? Microsoft uses a model based on the Quadruple aim<sup>1</sup>.

- 1) Engage patients
- 2) Empower care teams
- 3) Optimize clinical and operational effectiveness
- 4) Transform the continuum

In fact, this model might just as readily be applied to other industries like retail or banking, because the drivers of digital transformation are affecting every industry. “Think about how booking travel, shopping online, catching a ride, or even just watching a movie, has changed in the last decade. As consumers, we expect more today. Now think about the patient experience. We’ve got a long way to go.” Kos observes. Most health organizations have a portfolio of initiatives underway that map to these four pillars, whether they’ve consciously thought about it in this framework or not.

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<sup>1</sup>Bodenheimer, T. & Sinsky, C. “From Triple to Quadruple Aim: Care of the patient requires care of the provider” Ann Fam Med Nov/Dec 2014, vol. 12 no. 6 673-576

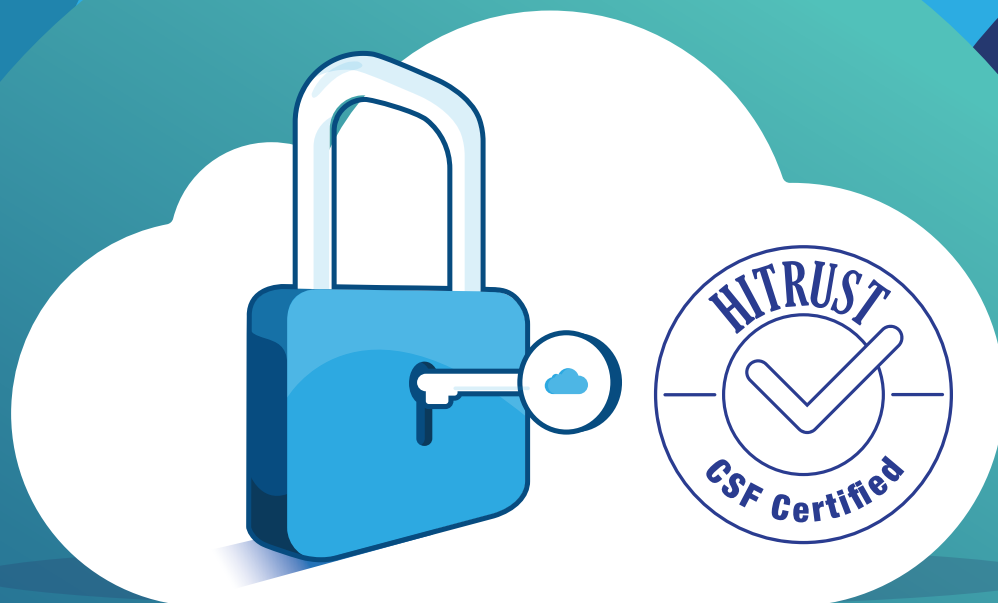
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## MICROSOFT HEALTH

### Patient engagement

We've all experienced the healthcare system at some point. It can be frustrating, scary, and confusing. "It's one of the only industries I know where information needs to be kept totally private yet shared with everyone," Kos observes. What does patient engagement look like? At the simplest level, it's technology that promotes the patient to an active, empowered position in the care relationship. That could be as simple as a patient view into the clinical care record, online meal ordering, or a kiosk check-in process. Many organizations have already replaced bedside entertainment systems with patient infotainment systems, allowing patients to access contextual, accurate and personalized health information, and even interact with the care team. Where could it lead? "I see precision

medicine, medical wearables, and the connected patient home as aspirational goals. The technology is not the limiting factor," says Kos.

Patient engagement strategies are about more than simply adding a pleasant veneer to a healthcare encounter. "That wouldn't be transformation," explains Kos. He illustrates using an example from Children's Mercy Hospital in Kansas City. They changed how they monitor certain cardiac conditions at home, replacing the traditional three-ring binder with an online record shared in real-time with the care team. The addition of video footage from the webcam has made a dramatic improvement, and they have decreased the mortality of hypoplastic left heart syndrome from 20% to almost zero. Their story is publicly available on Youtube and well worth a watch: 

This model is currently being rolled out to other hospitals nationally, and will redefine the prognosis for this condition. As a model of care however, it could just as readily be applied to any other condition



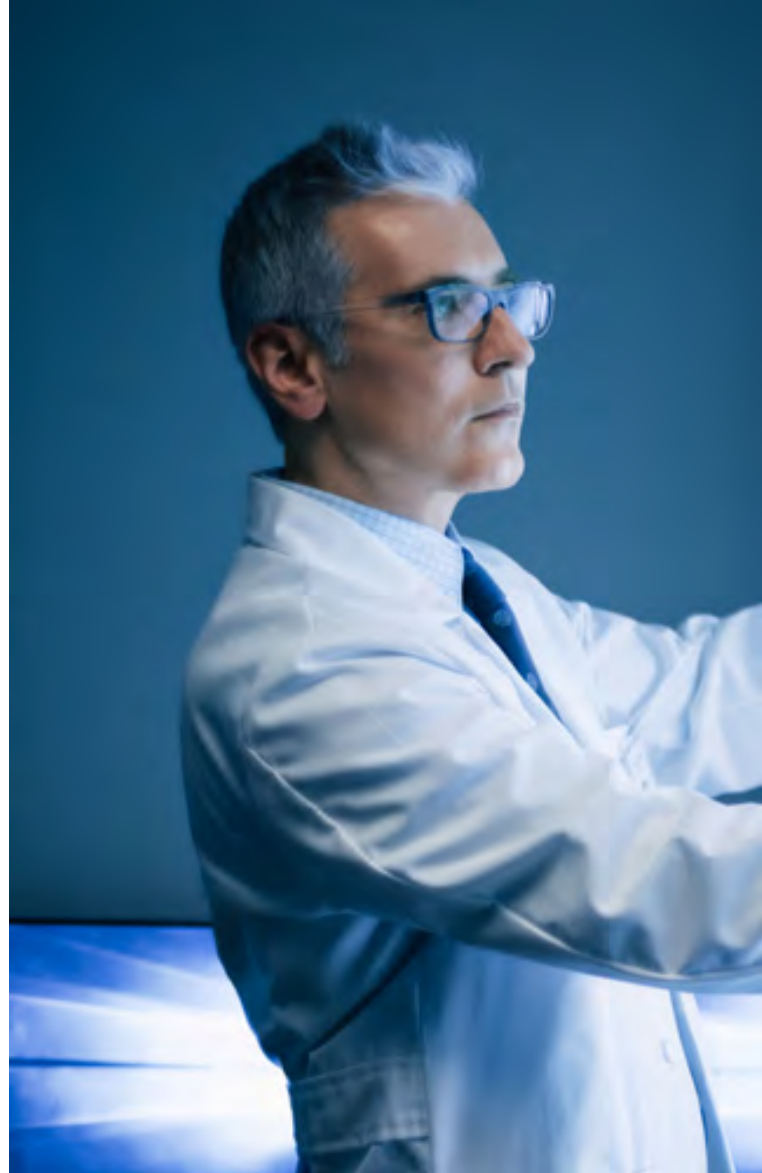
that would benefit from remote monitoring – acute or chronic. Similarly, tools that empower the patient or carers with information about their condition, allow them to document and monitor progress, and interact with their care team, can improve the experience and outcomes of care.





### Empowering care teams

“We have to move beyond the EMR. It’s a poor proxy for communication.” Kos begins. He continues to note that whilst many US health systems have spent hundreds of millions or even billions of dollars on their EMR systems, the spend has not boosted productivity or improved clinical workflow. A digital health record is important, but when coupled with a last-century pager system for communication, a disorganized intranet for policies and procedures, or a manual clinical education process, the potential value goes unrecognized. “The growth of shadow IT in health is phenomenal. I see clinicians using personal email addresses, swapping patient files over personal cloud storage, texting patient images and EMR screenshots



on their personal phones, even using personal messaging services for patient handover or online groups for clinical research.”. Kos observes that clinicians aren’t trying to be rogue with medical information, but they are frustrated with the tools that they are expected to use in the workplace.

There are better ways to help clinicians communicate, collaborate, team and learn. For each insecure, consumer cloud service, there is an enterprise grade, HIPAA compliant





alternative. Kos points to the Office 365 suite as an example that does email, calendaring, messaging, telephony, webcasting, groups, intranet, business intelligence, social networking and more. “The irony is that many health organizations own this technology, yet haven’t rolled out these capabilities to their clinicians.”. Is better communication and collaboration the end-goal? Again, Kos describes it as building blocks for transformation. “Using

these digital capabilities to deliver care in new ways is the objective. Telemedicine for example, or centers of excellence on enterprise social networking.”. One of the most radical initiatives involves augmented reality. Case Western Reserve University is using the new technology to reinvent the whole way they teach medical students anatomy, going as far as to remove cadavers from their curriculum in favour of holograms. Their story can be seen [here](#).



# TACKLING POPULATION HEALTH ONE PERSON AT A TIME

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## Optimize outcomes and operations

“Health is data rich and information poor.” Kos goes on to say that the data collected in clinical systems is generally for operational, communication, or medico-legal purposes. Most systems do not store information in a way that makes analytics easy, and an enterprise wide view across systems doesn’t emerge organically. “For an industry that prides itself on being evidence based, health does a poor job of using the most recent and relevant evidence – their own!” Kos exclaims. He sees analytics as a continuum spanning retrospective reporting, real-time dashboarding, predictive analytics, and even proscriptive decision-making using cognitive services and machine learning. Even relatively basic initiatives like patient journey-boards and KPI dashboards can have a huge impact on baselining performance, identifying bottlenecks and streamlining operations.

Kos sees the effective use of data and analytics as the only practical way of achieving population health. Whether it is managing a chronic



disease to prevent unnecessary readmissions, or supporting patients as they manage through a care plan, timely and accurate information is key. Assistance in Recovery (AiRCare) is doing exactly this, leveraging Tribridge’s Health 360 solution. This allows them to identify patients for proactive care, and engage them with clinical and behavioural care protocols to create a unique personal care plan. They have risk-based scoring for factors like suicidality, pregnancy, and relapse, that take into account age and history. This approach has been published as the AiRCare Model of Behavioural Health Crisis Management, and is considered an international best practice. The results are indeed impressive, including a lift in the 12 month continuous abstinence rate from the national average of 35%, to 72% for AiRCare patients.



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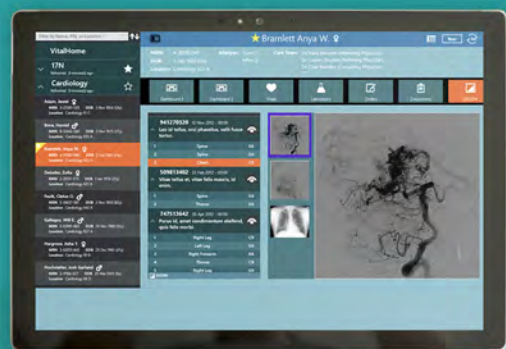
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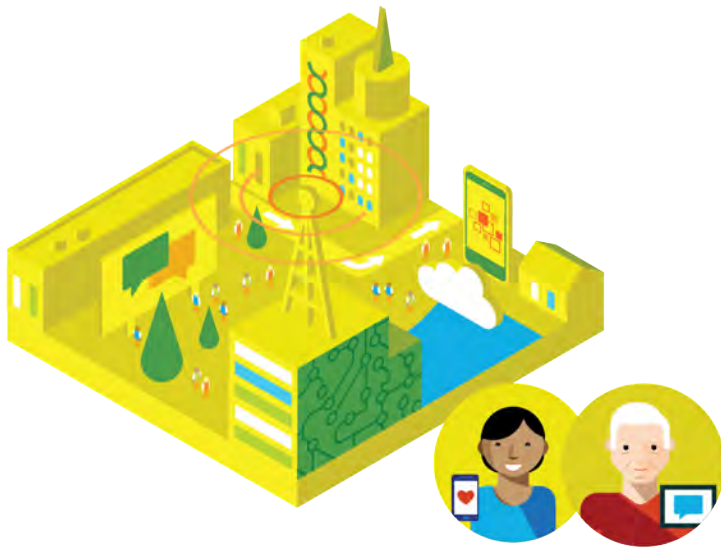




Going forward, Kos sees a real role for cognitive services in health. “We have an asymmetry of information, and the scarce time of the clinician is the bottleneck in redressing the balance.”. Microsoft makes cognitive services available as APIs to developers to create bot agents. He calls this conversational computing, and sees it applied to everything from the logistics of figuring out what health services are covered by your plan, to

assisted medical triage for non-urgent care. “The things cognitive services can do today is quite remarkable. They can ‘hear’ by interpreting your spoken voice, they can ‘see’ by analysing pictures, and they can even predict how you are feeling. The more information we feed a machine model, the smarter it becomes.” For a fascinating view on how this has come together to revolutionize the life of one blind man, see the story [here](#).





### Transform the continuum

Some of the most exciting models of care leverage cloud computing. This is currently the primary focus for Microsoft. Once viewed with scepticism by the health industry due to perceived security or control limitations, the cloud is now undeniably being embraced by health organizations around the world. Indeed, Gartner predicts that within this decade organizations will be going to the cloud precisely because it is more secure than the on premises counterpart. Part of this momentum is driven by cost efficiencies and outsourcing, but there is another motivator that is becoming increasingly apparent – some capabilities are only possible in the cloud.

“The cloud is essentially a global

supercomputer, that you can access on demand and pay only for what you use. You get all the benefits, yet the cost is spread across all the users. Kind of like timeshare.” Kos reflects. The virtually unlimited storage pool makes medical imaging storage cost effective, or any other big data scenario for that matter. The incredible processing power makes genomic sequencing feasible. Machine learning and artificial intelligence are most practical in the cloud. Aggregations of software as a service providers, like an enterprise app store, allow organizations to discover, trial and deploy new applications with a minimum of risk and hassle. Kos sees the potential of the cloud to defragment all the data silos that frustrate holistic health information management.

The cloud can also be a place for partnerships. Application developer Gojo teamed up with hand hygiene specialist Purell to create an innovative approach to combat hospital acquired infections. By combining information from activity monitors about staff traffic into a patient room, together





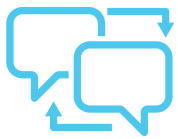
with usage feedback from the hand sanitizer dispenser, it is now possible to track with accuracy handwashing compliance. See the story [here](#).

Making cloud computing trustworthy is a key priority. Part of that involves making sure it is secure, and Microsoft invests over a billion dollars annually to that end. Just as important though is making sure that the cloud can be used compliantly, so Microsoft has invested in industry certifications like HIPAA through a Business Associates Agreement, HITECH, and FedRAMP. Keeping information



private, being transparent about datacentre operations, and allowing users the controls to manage their own data round out the trust story.

# MICROSOFT HEALTH



## 1. Empower your care teams

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## 3. Optimize your clinical & operational effectiveness

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## 2. Engage your patients & partners

Extend beyond org boundaries



## 4. Transform the care continuum

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### Partners:

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## The importance of partnership

Operating within the nucleus of Microsoft is a global partner network with entry criteria set deliberately low, so any development organisation using Microsoft technology can join through an online signup process. This is intended to bootstrap entrepreneurs, providing immediate benefits like access to technical support, training, and programs like Bizspark that subsidize development licensing costs and provide a certain amount of free cloud hosting each month.

The network is tiered, allowing partners to differentiate their product or capabilities through certification, and at the higher levels to tap into co-marketing and co-selling directly with Microsoft. “For health organizations, this means an ecosystem of partners on a common technology platform providing capability, choice and competition.” Kos summarizes. For more information about the Microsoft Partner Network see [here](#).

## Conclusion

Kos sees change accelerating for the health industry. The sector is not immune from digital disruption that has changed so many other sectors and redefined our perspectives. Moving beyond digitization into transformation is the new challenge, and health organizations across the globe are rallying with innovation. “This is ultimately why I continue with healthcare IT over clinical medicine. For me, the choice is between changing the world one patient at a time, or having impact on a global scale. I see Microsoft playing a key role in the digital transformation of healthcare.” Kos concludes. ■





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# The Y

Business Review USA & Canada speaks to YMCA of Greater Cincinnati's CIO, James McIntyre, about the ways in which technology is being utilized to create the best possible service for the community

Written by **Nell Walker**  
Produced by **David Kulowitch**









**T**he YMCA of Greater Cincinnati has proudly served its community for 164 years. Strengthening community is what the Y is all about, recognizing that lasting personal and social change comes about only when everybody works together to provide opportunities for youth development, healthy living and social responsibility. The Y is committed to reaching real, measurable goals and every four years involves staff, Y members, the board and stakeholders in the community to prepare a strategic plan to help it set and reach those goals. The bottom line is that by working together, a better place to live, work and play is created.

Ambitious companies like the Y require a sturdy backbone, and for a business which relies heavily upon IT, Chief Information Officer James McIntyre's expertise is invaluable. Hailing from Australia, McIntyre relocated to the US to study at Cincinnati Christian University (CCU), spending the following 17 years





## **James McIntyre**

**Chief Information Officer**

James brings 25+ years of business experience along with extensive technology and people management skills to serve our YMCA. He is skilled in strategic planning, data-driven decision making, business process reengineering, aligning work with strategy, executing delivery/measuring effectiveness, evaluating complex programs, and commoditizing IT and outsourcing.

For 17 years, he worked for PricewaterhouseCoopers as a Technology Consultant and was located in their Washington DC office as a Director of IT. He worked directly with Fortune 100 clients and looked after Global and National projects.

Most recently, James worked for 8 years at Cincinnati Christian University as their Chief Information Officer. He spearheaded a major initiative to cut costs and drive change by running 17 simultaneous projects to commoditize and or outsource the University's echnology portfolio.

**“We just have to keep  
the plates spinning  
and go on to deliver”**

– James McIntyre, Chief Information Officer



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at PricewaterhouseCoopers before returning to CCU as CIO. He spent nine years at CCU, and for the last two, he spearheaded a massive IT transformation which saw his team outsourcing all basic IT services to a Managed Services platform which involved 17 separate large projects.

After implementing enormous changes to a previously tired system, McIntyre moved on to the YMCA of Greater Cincinnati and

began replicating his success.

“What we did was take a deep dive into what I call the seven layer wedding cake,” he explains. “The first five layers are ‘commodity IT’ – which someone else can do better, faster, cheaper, and more securely than we can – and the bottom two are where tacit knowledge, strategy, and certain processes reside, that drive deeper strategy and alignment with the business. My vision is

**“Basically the only safe computer is one that has been encased in 10 cubic meters of concrete and dropped into the deepest pit in the Pacific Ocean”**

– James McIntyre,  
Chief Information Officer

basically that all commodity IT is outsourced. By commodity, I mean the stuff you never get thanked for, such as printing, telephone, WiFi, basic internet connectivity, and so on. IT departments have done these well for decades and have a hard time outsourcing them. Then, we focus on moving everything to SaaS (software as a service) and IaaS (infrastructure as a service), wherever possible. This allows us to focus on information instead of technology, as a business driver.”

In order to apply this to the YMCA of Greater Cincinnati, McIntyre had to identify the company’s needs and weaknesses, weighing them





against his wedding cake analogy. He had to determine which services would be outsourced, and what was required in terms of access, storage, development, communications, print services and connectivity, along with establishing a realistic timeline for implementation.

“We thought ‘what are all the different things that we do, and then which of those are in the top five layers of the cake?’” McIntyre says. “Some of them were straightforward. We had an AS/400 where all our data resided and we split this into two SaaS packages, or sites that fit our needs. For the ERP

system, we use Daxko which gave us enhanced reporting opportunities enabling us to make quicker and better business decisions. For the HRIS system, we chose Paycor, because of the plethora of built-in reporting that was available, along with the system’s amazing onboarding process resulting in efficiencies in the hiring process.

“Daxko includes additional modules with a lot of value, including their Engage product. This enables us to know when a member checks in, what their interests are, if he/she is a donor and that individual’s pattern of activity; all very powerful



# YMCA OF GREATER CINCINNATI







engagement and retention tools. It also uses artificial intelligence to alert us to members who may not be fully engaged and are ‘at risk’ of leaving.

“Paycor not only provides us with very detailed reporting, it has streamlined our paper processes. Instead of killing a lot of trees, everything is digital and we only produce a few pages for people to physically sign instead of the piles of paper generated in the past. We also worked with Paycor to scan and upload many files to their cloud-based system, where it is safe,

secure, available and backed-up.”

McIntyre approaches all needs case-by-case, while maintaining the vision of his seven-tier infrastructure. One ongoing project is moving all of the YMCA of Greater Cincinnati’s data to the cloud, using Microsoft Azure. Three months from now, McIntyre’s team will have transferred all historical data, including reports, spreadsheets, and PowerPoints to the cloud, at which more options will open up, such as scaling down pricey MPLS circuits, since all regularly-used data will be in the cloud.

## YMCA OF GREATER CINCINNATI

“Once it’s all in the cloud, everything we’ve got that is valuable sits on the internet and there’s no reason to pay for an extra service,” he says. “Our MPLS provider helped us to make the transition on the understanding that we would choose them as one of our two broadband providers. The end result is that we can offer our members greater access to WiFi, at a reasonable cost to the Y. We can potentially have 300 people streaming Netflix at the same time, so this was the right way to go. Our members love it.”

With all of the YMCA of Greater Cincinnati’s information – much of which is personal – floating in the ether, how does McIntyre’s team maintain security?



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“Basically the only safe computer is one that has been encased in 10 cubic meters of concrete and dropped into the deepest pit in the Pacific Ocean,” he wryly states. “Before we chose Daxko, we went through and had a look at their SOC 2 compliance report to ensure they had good, clean processes in place. That company had armed guards for protection of their data centers and we didn’t. We just had to come up with passwords which were complicated enough that they can’t be guessed, but simple enough that they don’t require writing down.”

The improved WiFi is one of the elements which keeps customers coming back to the YMCA of Greater Cincinnati, as it is not only quicker but more reliable than many systems used by our competitors. Some people relax in the lobby, have a coffee, and use the internet to stay linked-in to their communities.

“We’re currently in a hybrid situation,” he says. “We recognize

that once we get to the final stage it will be a whole lot easier to administer and we’ll save a lot of money. A big challenge is that some of the YMCA of Greater Cincinnati buildings are between 50 and 100 years old, and they can’t host the same level of IT. Because of that, we also have to analyze each building before we can pull the trigger and make changes across our association. We should have that under control by the time this project is complete in 2018.”

Another hurdle for McIntyre is budget. The YMCA is a nonprofit organization, meaning that resources are constrained. The IT team is very small, so they must prioritize on a real-time basis. As the YMCA of Greater Cincinnati undergoes this key transformation, the determined attitudes of McIntyre and his team bodes well for the organization. In his own words: “we just have to keep the plates spinning and go on to deliver.” ■





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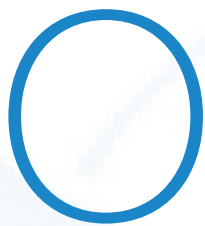
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Written by **Tom Wadlow**  
Produced by **David Kulowitch**





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For several decades CTS has designed, delivered and operated payment, information and management systems for transportation networks. Each year 24 billion transportation fares are processed through its technology, while every day 38 million people travel via the worldwide transportation operators with which the company works.

With a particularly strong presence across the United States, CTS has delivered services such as fare collection and real-time information

to the likes of Los Angeles, Chicago, Washington, D.C., Atlanta, Miami and San Diego, home to Cubic HQ. The Asia Pacific (APAC) region is seeing increased activity, especially in Australia and Singapore, while Europe is another territory targeted for expansion, building on successes seen in the UK.

“Our goal is simple,” says Tom Walker, CTS' SVP and Managing Director of CTS APAC. “It is to be the leading transportation payments and information systems and services provider for major customers in this region and our other strategic markets around the globe.”

In order to get there the company is leveraging the power of what is arguably the most valuable commodity in the world today – data. “We are about using technology to connect transportation systems and manage traffic and









### **Boris Karsch**

*VP of Strategy*

Boris Karsch is vice president, strategy for Cubic Transportation Systems. He leads the execution of Cubic's NextCity vision for the integration of payment and information systems with direct responsibility for strategy development, partnerships and acquisitions.

transportation flow in a more effective way, harnessing the power of information and connecting data in partnership with our customers – the transportation authorities who own their customers' information," adds Boris Karsch, VP of Strategy. "This focus on data and using it to make better decisions around transportation strategy is a key element of how our technology helps transportation operators and provides better service to their customers.

"For example, our customers are exploring how, with permission from passengers, the trip data can be used to provide a more personalized user experience, including alerts about service interruptions on their usual travel routes."

### **NextCity**

Cubic Transportation Systems' vision is packaged into what it calls NextCity, the panacea for how transportation payment and information can be managed. Founded on three core principles,



**“If we can make public transportation and traffic systems more user friendly, the number of individual car journeys will decline and congestion will reduce as a result”**

– Boris Karsch, VP of Strategy

NextCity focuses on the delivery of an integrated customer experience, one account for all travel modes, and integrated operations and analytics.

“Our strategy is to build around this vision, which came into play around five years ago,” explains Karsch. “The implication of mobile is what has really driven this concept and the heart of NextCity is making better use of information that is collected from these various devices, whether it be traffic sensors, video cameras, or fare collection and mobile devices. This is designed to give authorities and transportation operators information on traffic and transportation flows and where and when pinch

points are on any given day.

“We need to turn this back into data that is usable for passengers, too. For example, in many cities we take location data from buses and use it to predict when it will arrive at the stop where you are waiting.

Knowing exactly when your bus will arrive can make a big difference to your day, and if we can make public transportation systems more user friendly, the number of individual car journeys will decline and congestion will reduce as a result.”

Vital to executing this vision will be the continuing support not only of transportation providers and governments but also technology vendors. This has involved close



**3,000**

Number of employees at  
**Cubic Transportation  
Systems**

**“We are about using technology to connect transportation systems and manage traffic flow in a more effective way, harnessing the power of information”**

**– Boris Karsch, VP of Strategy**

collaboration with companies such as Microsoft. Cubic and Microsoft have combined transportation technology with cloud-based delivery models to handle growing data volumes. Through the Microsoft CityNext initiative, Microsoft and CTS will help cities do ‘new with less,’ by combining the power of technology with innovative solutions to connect governments, businesses and citizens with services that increase efficiencies, reduce costs, foster a more sustainable environment and cultivate thriving communities.

### **In practice**

Component parts of the NextCity vision are already being deployed in cities around the world. In Europe, the London system has been a flagship model for other cities to aspire to. Cubic has built on the success of its Oyster card by adding contactless bankcard payments across the entire transportation system including tube and overground rail fare gates all around the capital, as well as buses, trams, light rail and river boats, a move that has been received extremely positively.

In Germany, a Check In/Be Out (CiBo) pilot has been taking place in the North Rhine Westphalian city of Soest. Users’ phones will automatically tell the system when they have boarded and left a bus or train, charging their account accordingly.

“Passengers have to tap in but they do not tap out. This is the fundamental principle of smartphone-based ‘Check In/Be Out.’ There is added certainty



for end users and a smoother movement of people on and off transportation,” Karsch adds.

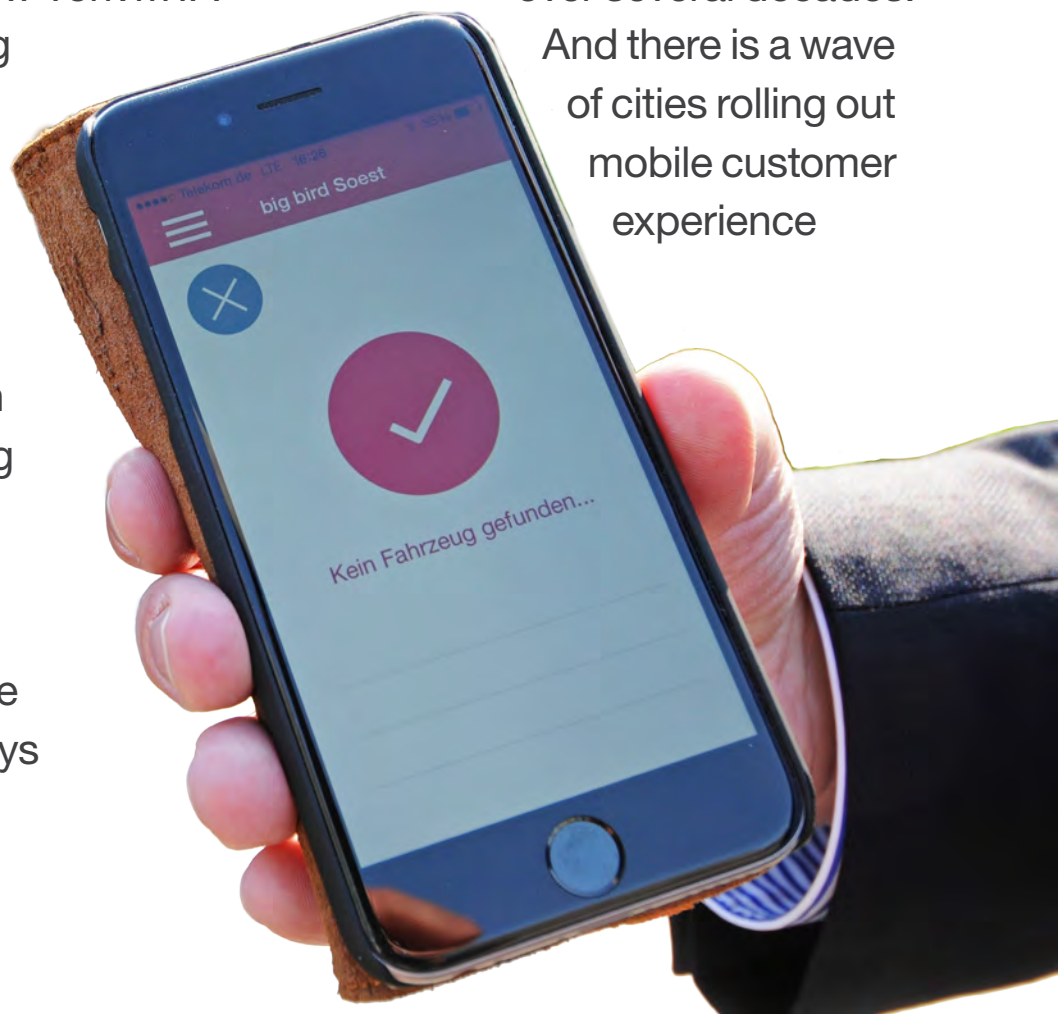
Cubic has partnered with Duisburger Verkehrsgesellschaft AG (DVG) and Kompetenzcenter Elektronisches Fahrgeldmanagement North Rhine-Westphalia (KCEFM), the consulting center for electronic fare management in the region, to organize the next project in order to investigate the behavior of such a system in underground stations and vehicles.

Closer to home, the New York MTA has been a long-standing customer. The city’s MetroCard system has been in operation since 2003, and Cubic has continued to support the MTA through various projects including the introduction of the Select Bus Service, the Second Avenue Subway Project, the Number 7 line extension and the Barclays

Center transit hub among many others. Recently, the company secured a \$40.3 million contract to continue support until 2022.

Karsch adds: “The MTA is in the middle of a procurement to upgrade their current system, a project which, of course, we are hoping to win. In the meantime, we are supporting the system already in place. This is a great example of the sort of long-term relationships we aspire to build with cities across the world. Chicago is another example, for which we have upgraded three times over several decades.

And there is a wave of cities rolling out mobile customer experience





### **Tom Walker**

*SVP and Managing  
Director, APAC*

Tom is Asia Pacific Senior Vice President and Managing Director for Cubic Transportation Systems. He is responsible for the award-winning Opal smart card ticketing system in New South Wales, as well as the go card system in South East Queensland. He also heads up the Cubic team involved in the implementation of contactless bankcard ticketing technology in Sydney, with trials due to begin in 2017.

programs where we hope we can make an impact.”

### **APAC advances**

Many of these cities can be found in the APAC region, where Tom Walker and his CTS team operate. The company has an especially strong presence in Australia, with 520 staff located in Sydney, Melbourne and Brisbane, while Singapore also houses a small team.

At the top of Walker’s project list is the development of a National Connected Multimodal Transport (NCMT) Test Bed in partnership with the University of Melbourne. It will be the world’s first urban laboratory capable of large-scale testing and implementation of emerging technologies in complex urban environments. Using sensors over a 4.5 square-kilometer area, the testing will explore ways to relieve pressures created by population growth and traffic increases by using data from traffic, public transportation, infrastructure and parking. The





NCMT Test Bed will also focus on multimodal transportation systems consisting of connected vehicles, roadways, freight, city logistics, public transportation, smart stations, pedestrians and cyclists.

Walker explains: “The information from all of the sources will be pulled into the platform and analyzed. How are people moving through the city? What factors impact their decisions? These are key questions that need answering in order to create a truly connected multimodal transportation system.

“This will help build a complete picture of mobility over time in the area and will give us insight on how people’s behavior changes when

**“There are cities out there ready to take it on and make the next step from automated ticketing”**

**– Tom Walker, SVP and MD of APAC**

incidents happen. It is not trying to be too definitive necessarily about what data; the end goal is to get the total view of the area. There is a huge amount of data out there already, but the problem is trying to analyze in a way that becomes useful information and can lead to positive, effective decisions.”

## CUBIC TRANSPORTATION SYSTEMS

Adding further intrigue to the project is the major development of a new metro line through the city, and data from how this is used and responded to will provide extra and crucial insight into urban mobility. “This is a fantastic opportunity for us to mature our product, which we believe will be in great demand as cities look to optimize their transportation networks,” Walker adds.

In Sydney this year, CTS will be participating in a trial of London-style open payment, or contactless ticketing. The trial will allow Sydney commuters to tap their contactless bankcard directly on Opal readers at fare gates to pay for travel. Walker says Cubic is very proud to be part of the trial, which will be the first time open payment technology has been used in Australia and the southern hemisphere.

### Singapore

Among the ‘smartest’ cities in the world along with the likes of Dubai, Singapore is continually investing

in its transportation infrastructure.

“We have a new contract to provide automated fare collection equipment for Singapore’s Thomson-East Coast Line, an important extension of the city’s rail system,” Walker says. “Delivery of the Singapore system should take place in 2019 in parallel with the construction timetable for the metro line.

Singapore no doubt will emerge to become one of CTS’s most valuable APAC cities, a willing testing ground for innovation. “We see Singapore as a key market for us,” Walker adds. “It is a forward-thinking city that is eager to try out new ideas to improve the customer experience.”

### Joined up journeys

Integration of the first and last mile of a customer’s journey is what will allow CTS to truly implement its NextCity vision. Ride and bike-sharing schemes, and perhaps further down the line autonomous cars, will therefore be crucial by getting





**“How are people moving through the city? What factors impact their decisions? These are key questions that need answering in order to create a truly connected multi-modal transportation system”**

– Tom Walker, SVP and MD of APAC

on board to make this happen.

“Companies like Uber are really starting to take off,” says Karsch. “Cities are therefore asking us how to integrate these types of services into the overall fare collection system for transportation, and the role they can play in solving the first mile-last mile problem. Over the next five to 10 years these services will be integrated into the whole system.”

“Ride-sharing operators are very interested in the first and last miles of a customer’s journey,” adds Walker. “They will be adding to the choice when passengers get off the train or bus as to how to get home. I believe they will be very keen to be part of the one payment solution from doorstep to destination.”

Customers are also expressing keen interest in managing just one account for an entire journey within a city, not least in Australia.

“This will be a key component of a city truly being able to move people through seamlessly and effortlessly,” says Walker. “It will give the complete end-to-end, doorstep-to-destination set of data needed to understand how people move.”

Indeed, projects such as the NCMT will be the basis of a personal communication between the city’s transportation network and the end user. The app or account will be able to tell a customer if their usual way into work or journey is disrupted on any given day, offering





alternatives, which Walker says could even include incentives such as discount vouchers.

By integrating the first and last mile elements, CTS expects to make significant strides towards realization of NextCity, which is CTS' overriding strategic goal.

He concludes: "We would like to launch NextCity or something very close to this total end-to-end transportation network in the next five years. There are cities out there ready to take it on and make the next step from automated ticketing."



**DTT** ®



**DTT headquarters in Las Vegas, Nevada**





# DTT: Detecting theft *in fast food restaurants*

DTT has come a long way since its formation in 1999, helping some of the USA's most well-known restaurants and food outlets protect their incomes

Written by **Leila Hawkins**  
Produced by **Ashley Park**

When surveillance company DTT was founded in 1999, videotape was used as standard for CCTV. Technologies like digitization of video and integration with data sources like POS systems make detecting theft and remote viewing and management of operations easier than ever.

DTT, which stands for “Drive Thru Technology”, was founded in 1999 to service menu boards and communications systems in drive thru’s for Quick Service Restaurants (QSR), sometimes referred to as fast food restaurants.

At the time CCTV was on videotape, and digital systems were beginning to supplant the archaic aforementioned systems. DTTs customers began asking for these systems to monitor the drive thru and DTT pivoted to meet customer needs. DTT’s current solution is largely software-based. Valuable partnerships with HP, Microsoft and particularly Level 10 - which took over the building and refurbishment of their hardware - enabled DTT to focus on developing these new technologies.

The system documents cases of theft and fraud, using watermarked, court-admissible video evidence. Specializing in the hospitality industry, the company also has a significant video auditing practice with hundreds of loss prevention and operational specialists to fulfil or augment existing risk management efforts. This has expanded as DTT reviews operational aspects of business like cleanliness, speed of service and customer service by reviewing video with audio.

Vic Herrera is the Chief Technology Officer, overseeing all company technology (both customer-facing and internal) focusing on new product development and cloud architecture.

“DTT definitely made a name for itself in its ability to catch theft and fraud,” he says. “We process 25,000 audits a month; of those, one in eight reveal some sort of fraud. When we find those, tied to a product we have called SmartAudit™, that’s the tip of the iceberg. If we find someone stealing, we identify them using video. We also have a service where we’ll do an investigation into the individual in question and find out how much



**DTT CEO/Founder  
Sam Naficy**





## Vic Herrera CTO

Vic joined DTT in early 2004 and has since been responsible for supporting the technology initiatives for DTT's mission-critical infrastructure and administrative functions. In his early career, Vic gained experience setting up standalone CRM systems, then took on roles at InterAccess and Divine.

Upon moving to the West Coast, Vic implemented the Quality School Portfolio, developed by the National Center for Research on Evaluation, Standards, and Student Testing at UCLA (CRESST), for the No Child Left Behind program. Vic also staffed the successful Schwarzenegger Gubernatorial Campaign with technical help at their Los Angeles Headquarters.

In June of 2015, Vic was awarded with LA Business Journal's CIO/CTO of the Year award.

## DTT

that person has been stealing.”

Cloud-based storage is invaluable for this because its capacity is technically limitless. “When we talk about long term storage in the cloud, the ROI is significant, as it is long term storage that addresses issues like worker's comp issues and civil litigation like slip and falls.

It's a safe system because all information is encrypted and DTT uses multi-factor authentication. “We closely monitor all connectivity via VPN, ensuring PCI compliance. Our secret sauce is the intersection of video and data, which started with our Point Of Sale (POS) integrations. Our POS integrations align receipt data as well as clock ins, clock outs and cash drops with video. We now integrate to all major POS vendors and work closely with them to ensure that no credit card data or PII (personally identifiable information) is accessible, guaranteeing compliance with PCI and all other compliance regulations.

### Competitive edge

In 2007 DTT moved to a monthly subscription model for its customers,



# “For over a decade I have had the honour of leading bright, talented men and women”

– Vic Herrera, CTO

who include big franchises like Taco Bell, Subway, Krispy Kreme, and Dunkin’ Donuts. This allows the customers to treat this as an OPEX. Approximately 40 percent of its clients are enterprise customers operating hundreds of locations, and Herrera says part of the company’s success

is down to its ability to cater to big operators as well as single store owners. “Ninety percent of DTT field services are performed by W2 badged employees, as they have a presence in all major metropolitan areas in the US. This is unique since our competitors rely solely on



**Vic poses with DTT’s IT team after receiving the LA Business Journal 2015 CTO/CIO of the Year award.**



**DTT utilizes a team of in-house installers to service all customers across the nation.**

**“We process  
25,000 audits a  
month; of those,  
one in eight  
produce some  
sort of fraud”**

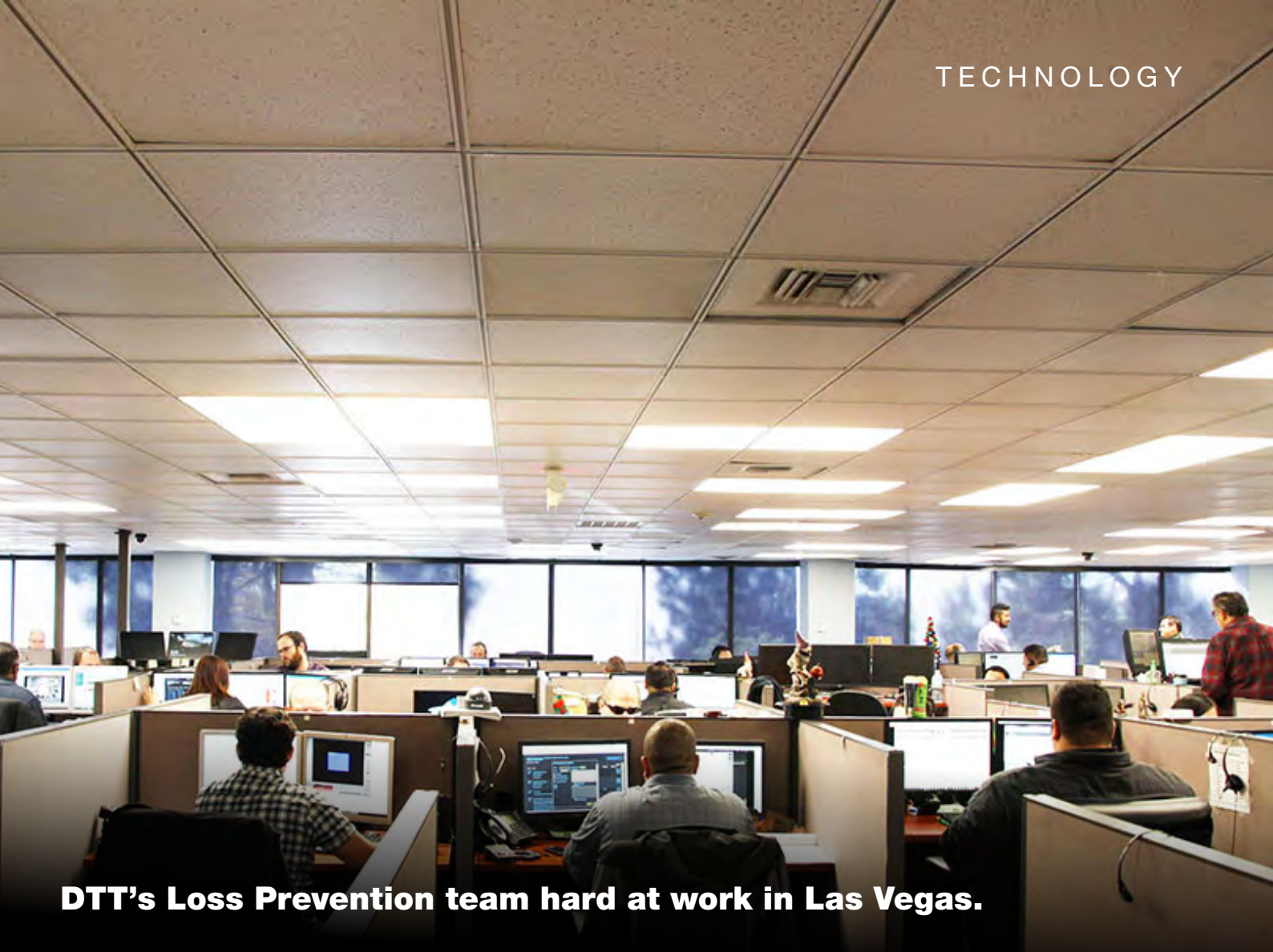
– Vic Herrera, CTO

subcontractors. DTT controls the quality of installations by using its own employees and partners with Level 10 to ensure the right hardware is in the right place at the right time.”

### **Roadmap**

Product development is guided by clients, who sit on our steering committee. Herrera explains: “The members of our steering committee make up the largest brands in hospitality. These risk management





## **DTT's Loss Prevention team hard at work in Las Vegas.**

professionals and technical advisors represent about half a million restaurants and drive all of our innovation and cloud technologies.”

The company has set its sights on convenience stores, or “c-stores,” as they’re referred to in the industry. “They’re a very different footprint with a much higher theft and fraud risk because you typically have a single person working in a store with a quarter million dollars’ worth of inventory. Alcohol and cigarettes

have age restrictions, so video with audio allows us to ensure that employees are following policies and laws regarding these products.”

DTT recently received vendor approval to integrate with POS information from 7-Eleven, a huge chain with over 8,000 stores in the US. As Herrera explains: “They are an anchor client and we are honoured and proud to have passed this test. This is a tremendous opportunity for DTT and represents significant growth for us.”

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## DTT

### Staff development

Herrera takes staff development very seriously. “I believe that the measure of my performance is directly related to the growth of my employees, which involves helping them reach their maximum potential. I have had the honour of leading bright, talented men and women here at DTT for over a decade, many of whom have gone on to do great things. I take great satisfaction in knowing I was part of their path.”

As a result, he was named Los Angeles Business Journal’s CTO of the Year for team building in 2015. As well as caring for employees’ career progression, Herrera says DTT is an exciting place to work. “In my department we’re building amazing applications leveraging cloud infrastructure. Partnering with Level 10 allowed us to focus on core competencies like our cloud video infrastructure and service organization. Our teams are making a difference, reducing risk for our customers using cutting edge video and cloud technologies.

“Los Angeles is experiencing



**DTT’s remote view software allows monitoring of multiple areas and/or multiple stores on one screen.**





**DTT makes managing multiple stores easy with the cross-compatible MyDTT™ enterprise management portal.**

a technology explosion with start-ups popping up everywhere. It's like Silicon Valley but with nicer weather. DTT has long been anchored in the Downtown area close to Union Station, which is seeing a major resurgence. This is attracting more tech-savvy talent and DTT is in the thick of where developers and technologists want to be. We are also located at a major transportation hub, allowing us access to more qualified resources. The result is a terrific place to work for engineers that is geographically desirable.” ■

**DTT** 



The background features several thick, blue, wavy lines that curve across the page, creating a sense of motion and modernity. The main title is centered within a large, dark blue, rounded shape that also follows the wavy pattern.

# *Harnessing* **HYBRID**

*MV Transportation is building on its  
rich 40-year legacy by investing  
in hybrid innovation, both in its  
own internal applications  
and customer facing  
s o l u t i o n s*

Written by **Tom Wadlow**  
Produced by **David Kulowitch**





## MV TRANSPORTATION

“It is so easy within a technology company of today to build what you think a customer needs,” muses Ray Lowrey, CTO at MV Transportation. “The real challenge is to truly understand and build what a customer needs, and this philosophy is testament to the core of what MV Transportation is about.”

Recent years have seen a stark movement of the goalposts in the transportation industry. Modes of transport are being integrated like never before with customers reliant on real time data to plan their journeys. Gone are the days of paper timetables and waiting in hope for a bus or train to arrive.

For the past four decades MV Transportation has provided safe, reliable and affordable transportation services to cities, counties, municipalities and other jurisdictional entities, as well as for private corporations, non-profit agencies

and community organizations. From paratransit to fixed route operations, the company is now looking to add new solutions to meet current and future needs, harnessing the power of its own team of engineers and

expert partners to develop and deliver solutions angled at passenger and, just as crucially, driver needs.

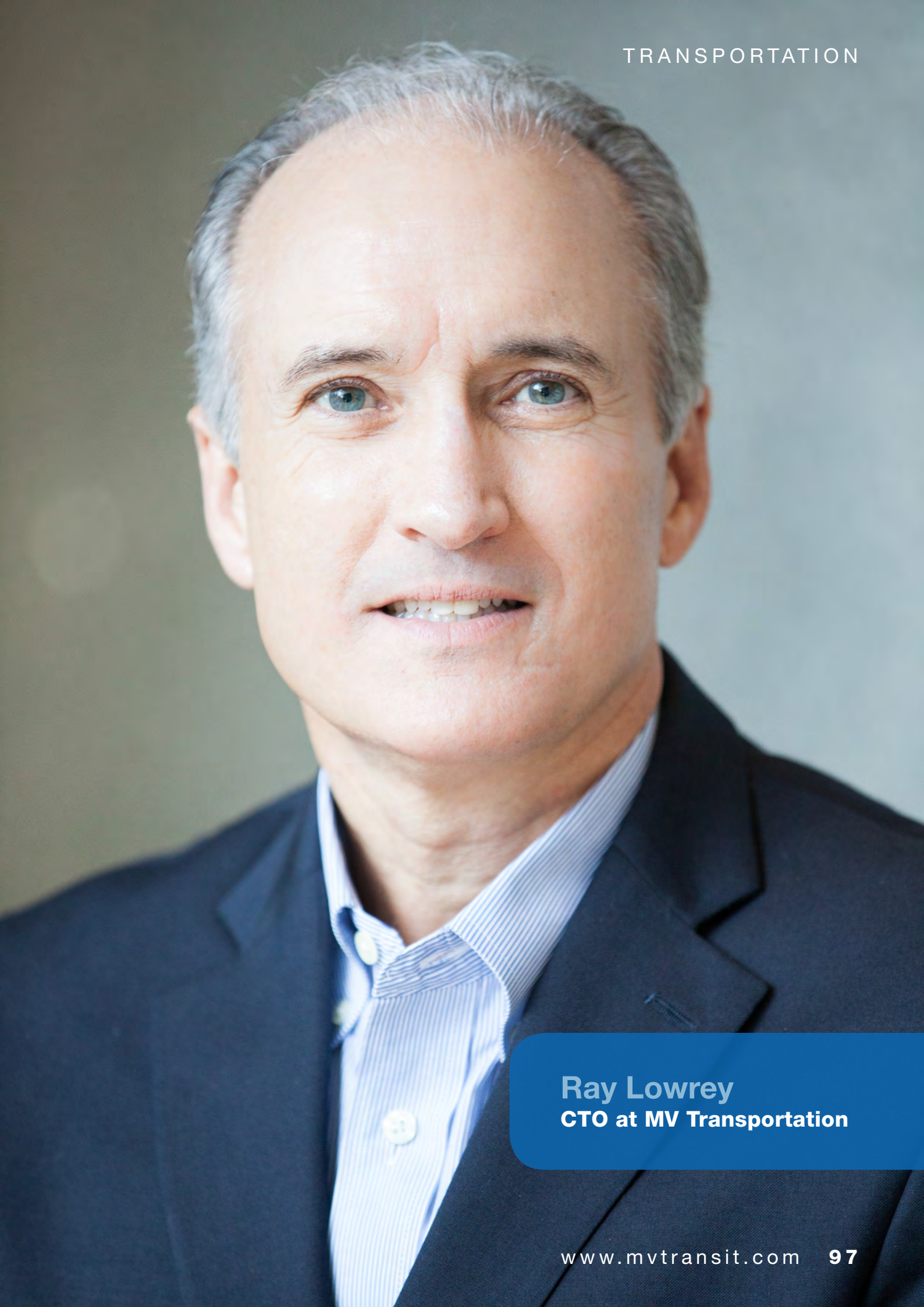
Central to this is CTO Lowrey and his team. “I focus predominantly in three key areas,” he says. “First is traditional infrastructure across our 200 US locations, ensuring all of our servers, networks and phone systems are all operational and meeting our needs. The second

area relates to our internal applications – our financial, sales, marketing and operational applications, making sure they provide the functionality needed to run the business. The third and arguably the most exciting is development of customer facing



**John Rogers**  
**CEO at**  
**MV Transportation**





**Ray Lowrey**  
**CTO at MV Transportation**





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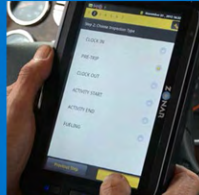
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Fleet managers and maintenance personnel can tap into the engine control unit of each vehicle to identify faults and schedule preventative maintenance before an operator ever sees a defect. A proactive approach drastically reduces the number of service calls and improves the uptime of fleets on the road.

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## **Protect against audits**

The inspection data captured by an operator can be transferred over the cloud to our powerful Ground Traffic Control® web-based application. This gives fleet managers and maintenance personnel immediate insight into defects and the health of each vehicle. Everything you need to know (and more) is captured and stored electronically.

## **Customize and integrate**

Because every business is different, we give you the option to customize your solution, something true of almost every Zonar product. We also work closely with key third-party software companies to deliver a completely integrated solution for our customers, which means we can seamlessly enhance existing workflows and processes for things like fare box security and more.

We believe  
that the runway  
in the US is very long and  
this is very much where our  
attention is right now

– Ray Lowrey, CTO





solutions. We work very closely with our business development team and customers on extensive market research to see where the industry is heading, using all of that input to develop and deploy new solutions.”

Technology is being taken seriously from the very top of the business. In the late summer of 2015 MV held a detailed strategic planning workshop, outlining a number of paths the company plans to invest people and capital into. Technology was one of these four key areas.

### **Internal transformation**

In order to develop and deliver the hybrid transport solutions of the future, the company recognises that ongoing change from within is an important pre-requisite.

An example of this in motion has been MV’s expansion of the use of Salesforce.com over the past year. Lowrey explains: “We carried out a very detailed analysis of all the business development processes and how we can make greater use of the platform, evolving from

traditional sales functionality and automation to become more of a customer health checking application. Visibility of information is key to this.

“We have already seen a number of enhancements, from improved business development processes to making sure we focus time and energy on the right opportunities, and making sure we communicate the status of these opportunities effectively to our staff. The workflow functionality within Salesforce has been leveraged much more effectively as a result.”

MV Transportation has made a several advances in its product development processes. For example, the company has established product teams and reinforced its focus on understanding and interacting with customers, making sure what it builds into various products is what they want it to deliver.

Migration to the cloud is another vital component to be explored this year. “We’re looking at the cloud both from an internal and external point of view, whether it be looking to move our email and office products to Office 365 or moving our customer



facing products to a cloud platform,” Lowrey says. “As far as Office 365 is concerned, we need to make the move a non-event for employees to minimise disruption to the business. It is not something we are going to rush into and requires very careful planning.”

Moving to the cloud will allow the business to scale in a more cost effective manner, removing the need for heavy investment in on-premise hardware and physical equipment. Lowrey also believes that the ability to integrate internal and external systems is enhanced through the cloud versus

a legacy platform. “Cloud will add value to both the customer and us as a corporation,” he adds. “The focus now is on the ability to integrate as much as it is to develop new software.”

### **Paratransit and fixed route: shrinking boundaries**

MV Transportation’s own drive to become more agile as an organisation has been spurred by a key industry trend – the blurring of boundaries





between what were once standalone divisions in transport services.

The next 12-18 months will see MV cater for this growing trend through development of its own on-demand, real time transportation solution. With a number of clients operating a mixture of paratransit, fixed route and bespoke shuttle services in between, Lowrey is pressing ahead with the

development of a system to match these needs.

“We are building on our investments made in 2016 by adding new features and functionalities,” he says. “The area we see a huge amount of potential in is the shuttle market. For example, corporate clients looking to move individuals from A to B or even a university campus with a mixture of fixed route and

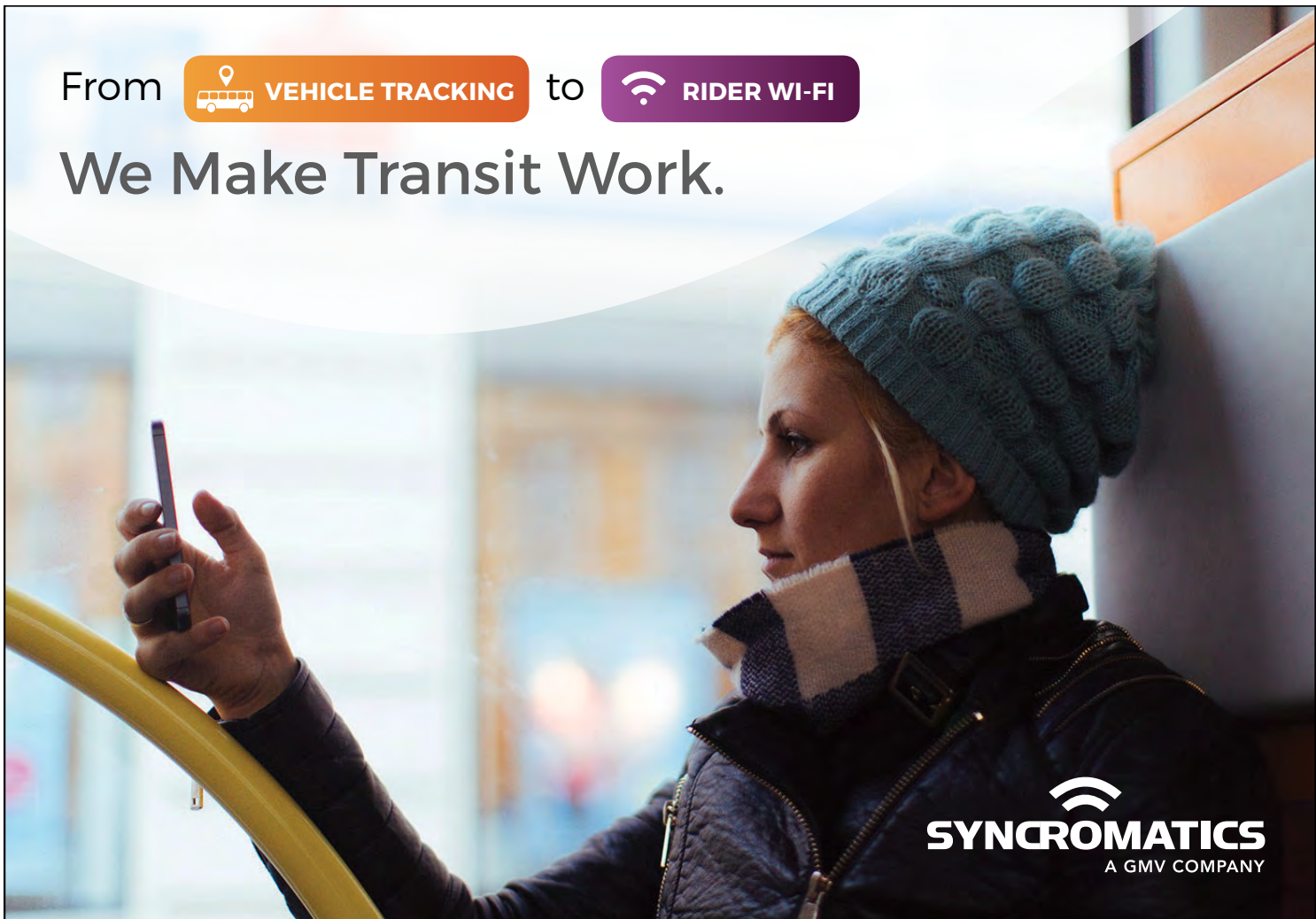


# MV TRANSPORTATION



From  **VEHICLE TRACKING** to  **RIDER WI-FI**

**We Make Transit Work.**



  
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specialist shuttles such as journeys with wheelchair access vehicles.

“The ability to have a real time on demand-type service is what we are looking at. As we invest in that platform other opportunities will present themselves – the lines are becoming much greyer and we must respond to that. This presents both challenges and opportunities. If you stay in the mind-set of the past where there were black and white divisions between those services, then you will be left behind.”

Shuttle services are becoming ever more popular facets of transport systems and networks across the USA, often serving as a private extension to public transit infrastructure. Key benefits include the reduction of traffic congestion, improved responsiveness and increased mobility of consumers. They also serve as a means to improve the attractiveness of an employer or public venue.

Although this is very much an internal project, MV has for decades been partnering with technology vendors to maximise efficiency and

speed to market with a number of solutions, especially in the paratransit arena. Among the systems developed with external suppliers include Automated Scheduling Systems, Mobile Data Terminals/Mobile Data Computers, Automated Inspection Tools, Farebox Equipment, On Board Video Systems, and Maintenance Management Information Systems.

MV has established strategic partnerships with industry leaders such as Trapeze, Syncromatics, Verizon and others. “In order to achieve the optimal balance between time to market, strategic value and overall cost, we have forged strong relationships with a select group of companies to deliver the best solutions for our customers,” states Lowrey

### **Maximised knowledge**

Combined with MV’s internal development team, the knowledge base from which Lowrey can draw upon is vast.

“We have a very experienced, very talented core development team. Individuals with years of



**“We are all about our customers and how our engineering can deliver for them, their passengers and their drivers”**

– Ray Lowrey, CTO

experience within both the industry and technology, which is the perfect balance,” he explains. “We have also worked very effectively with vendors who allow us to scale rapidly if we need to.”

That MV is a household name in the industry, whose products impact the daily lives of thousands across the US, also helps attract the finest engineering talent. “Being the largest private provider of managed transit



Year founded

1975

Yearly revenue

\$1.1  
Billion  
(2015 audited)

20,000

Number of  
employees at  
MV Transportation



services in the US and drawing on the true success stories over the past 40 years certainly makes MV an attractive place to seek a career,” Lowrey adds. “When you sit down with individuals and explain how their solutions will impact so many people relying on transport systems, it is a big pull factor. We are all about our customers and how our engineering can deliver for them, their passengers and their drivers.”

By continuing to develop its own bespoke solutions and harnessing the power of expert vendors, MV Transportation will continue to lead the way in its domestic market.

Lowrey concludes: “There are so many opportunities in our domestic market, not least with school buses and shuttles. We believe that the runway in the US and Canada is very long and this is very much where our attention is right now.” ■



# acciona DIVES TO NEW DEPTHS IN CANADA

Written by **Sarah Megginson** Produced by **Tom Ventura**







*With more than 15 years of experience planning and executing infrastructure projects in Canada, ACCIONA is starting to make waves in the water industry through its water division, kicking off with a 30-year project to transform New Brunswick's largest water works*



## *Transforming one of Canada's oldest water distribution systems into a modern-day benchmark is no mean task.*

**T**ransforming one of Canada's oldest water distribution systems into a modern-day benchmark is no mean task.

With a three-year construction and 30-year maintenance commitment, the CA\$217 million Saint John Safe Clean Drinking Water project will see the construction of a brand new water treatment plant by November 2018, capable of treating 75 million litres a day. The treatment plant, combined with a 33 million-litre storage facility, will serve 70,000 residents in Saint John, New Brunswick. As the largest project of its kind in the province, it's a significant step forward for improving the quality of existing water infrastructure. For ACCIONA, it marks a significant step into the Canadian water treatment market.

For more than 15 years, ACCIONA has been planning and executing vital infrastructure projects across Canada. Drawing on its position as a global provider in the development and management of sustainable infrastructure, water, services and renewable energy – a network of expertise comprising more than 33,000 people in dozens of countries across the globe – ACCIONA



**“Having local people on board gave us insights and has really been integral to our success”**

– Andrew Evenden,  
Senior Project Manager







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combines this formidable technical knowledge with strong local partnerships on the ground.

Such work has resulted in the successful completion of numerous Canadian Infrastructure projects, and led ACCIONA to be a lead partner of choice for one of the largest infrastructure projects in Canada: Site C Clean Energy Project. ACCIONA has also installed more than 200MW of renewable energy through projects in Alberta, Ontario and New Brunswick. Further strengthening the company's sustainable credentials is the construction of two LEED gold certified hospitals in British Columbia, the Royal Jubilee and Fort Saint John. With such a track record of success, its intent is to build a similar reputation in the Canadian water industry.


Andrew Evenden is a Senior Project Manager with ACCIONA, pursuing opportunities in the design and construction of all forms of water treatment and wastewater treatment plants, including conventional systems and membrane type technologies. Beyond construction, the company



## **Andrew Evenden** **Senior Project Manager**

Andrew moved to Canada with ACCIONA in January 2015 to manage the Company's bid submissions for the Saint John Safe Clean Drinking Water Project (SCDWP). Working closely with ACCIONA's well established Canadian construction business, the Canadian water infrastructure community and several key Saint John firms, he brought a formidable team together for this important project. After financial close, Andrew moved to Saint John as the Design and Build Project Director to start the development and construction of the project which is progressing well towards completion which is planned for end of 2018.

Andrew has over 25 years' experience managing large, technically complex, multifaceted projects in the Middle East, USA and Australia. He holds an MBA from Adelaide University in Australia, and a Bachelor of Science in Electrical Engineering from the University of Leeds, UK.

A construction site featuring large concrete pipes stacked in rows on the right and a complex rebar structure for a concrete foundation in the foreground. The background shows a wooded area with tall, thin trees.

**“They have a system in place that includes infrastructure which, in some cases, IS WELL OVER 100 YEARS OLD, so the reliability is difficult to manage”**

– Andrew Evenden, Senior Project Manager

can also assume responsibility for the operation and maintenance of networks and treatment plants.

“ACCIONA is very much an international company having, in the last 10 to 20 years, expanded into many markets around the world, including the Middle East and North Africa, Europe, South America and

North America, Australia and South East Asia,” Evenden explains.

“Canada and the United States offer good opportunities to grow our water division, building on the successful Tampa Bay Desalination Plant and Saint John projects that require specific expertise in design build operation type contracting.”





### **Saint John: a Canadian flagship project**

While ACCIONA has been successfully delivering new projects in Canada for many years, ACCIONA's water division has only recently entered the market – and it did so with a very ambitious project.

Saint John, New Brunswick

is a thriving port city, home to around 70,000 people in total, with approximately 128,000 in the census metropolitan area. At present, the city's existing water system is aging and needs updating to ensure the water meets current and future guidelines and that deficiencies in infrastructure are addressed. While



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the existing drinking water is safe, the need for improving treatment processes and upgrading existing infrastructure is significant.

Enter ACCIONA, which has collaborated with a number of key partners and suppliers in several joint ventures to construct the city's new water treatment plant – an exciting milestone that will bring substantial improvements to the quality of drinking water for residents.

“Delivering this type of project to the residents of Saint John will improve the quality of the water they're using,” Evenden says.

“Whilst the residents of Saint John have been drinking water which is disinfected correctly and therefore safe to drink, the quality of water delivered to the ratepayers doesn't meet the current Canadian water standards, which is really driving these changes.”

There are four parts to the project: the first is the construction of the new water treatment plant. This will deliver water from the existing water source reservoir to the city's eastside residents. Instead



## **Brian Nicholas**

**Director, Business  
Development North America**

Brian is responsible for co-ordinating the growth of the water sector enterprise across North America for ACCIONA, with a special focus on the design, construction and if required operation and financing of water and wastewater treatment plants.

Prior to this, Brian was responsible for developing and overseeing the water division business growth in markets such as Australia, Canada and the United Kingdom, as well as growing and managing a multi-discipline business development team that includes marketing, technical, project management and estimation. He has over 40 years of water sector experience.

Brian has qualifications in business administration; environmental management and chemistry.



**Darren Sokoloski**  
**President and Country Director**

As Country Director and President, Darren is responsible for the strategic direction and overall performance of ACCIONA's Infrastructure division in Canada. Darren joined Acciona in 2012 and previously held positions with infrastructure investor and constructor Bilfinger Berger and with the infrastructure investment arm of Macquarie Group. Darren's experience in infrastructure development and delivery includes work with public sector and private sector clients across a range of asset classes.

**ACCIONA**

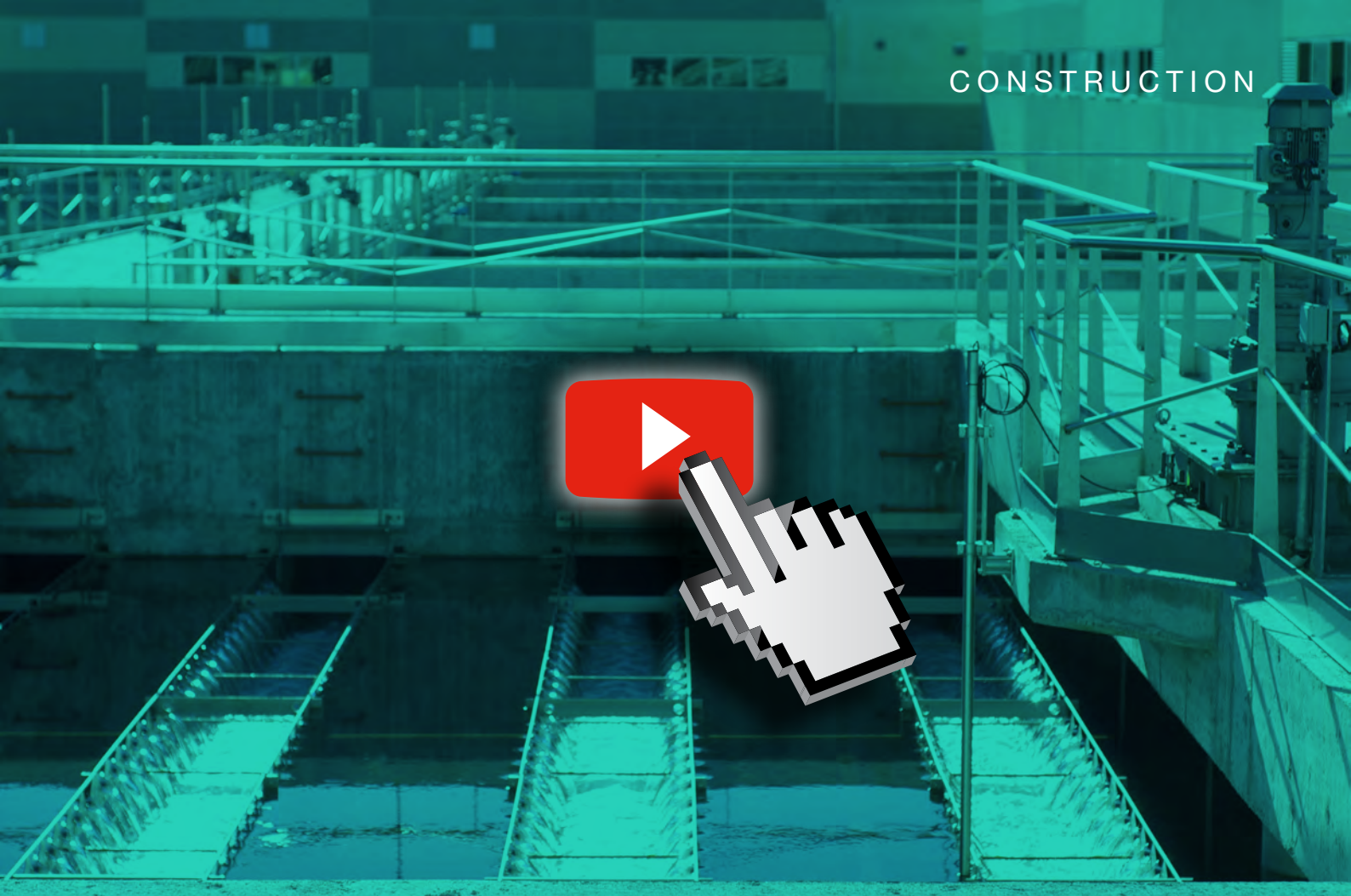
of it just being disinfected, it will go through a complete modern water treatment process.

The second part of the project involves significant upgrades to the water source reservoirs, installation of new water transmission mains and relining of existing transmission mains throughout the city. This part of the project will provide significant upgrades to an aging water infrastructure network – some of which has been in place for well over 100 years.

The third part of the project involves development of a new well site on the west side of the city and an upgrade to the existing pump stations and transmission lines to deliver well water to the residences west of the St. John River.

“Then, the fourth part of course is looking after the operational side of the project,” Evenden adds. “It’s a three-year construction period, which commenced in February 2016 and is due for completion November 2018, but following completion, there will be 30 years of operations that needs to be planned for.”





### **A unique challenge**

Evenden, who confirms that construction is well under-way and on schedule, says the company was excited to be onboard with a project that presented so many unique challenges, particularly to do with water security.

“The water delivered through the new water plant and the new well site will improve odour, taste and clarity – and from a consumer point of view, it won’t be susceptible to boil water orders, which is a great benefit to the residents.”

### **Local strength**

Grappling with aging infrastructure was an anticipated challenge, but Evenden admits there have been other challenges that they have come across throughout the project. For instance, Saint John has a sizeable amount of rock close to the surface, and therefore required more blasting and removal than first anticipated.

“Aging infrastructure and the high levels of rock around the city presents us with some interesting challenges. But having local people on board gave us insights and has



really been integral to our success.”

Local partnerships with two businesses in particular, Gulf Operators and FCC Construction, have highlighted much about the benefits of utilizing local companies and expertise.

“We teamed with a couple of very strong local companies, who we’d call our ‘construction partners’, and these are people we’ve dealt with and worked with very closely for over two years,” Evenden explains.

“Having these businesses on board has made a big difference, in terms of understanding the local market and appreciating how Saint John works as a community. The culture is extremely friendly and locally oriented, therefore the market and the business scene is very community and socially-minded”.

### **A progressive pipeline**

Thanks to its expertise, global experience and strong local



partnerships, ACCIONA has several water projects in the pipeline and is continuing to position itself as a partner of choice to actively participate in the emerging design build and P3 markets in Canada and the USA.

Last year, the company was shortlisted for the Lions Gate Wastewater Treatment plant in North Vancouver, BC, Canada. With the current treatment plant at the end of its operational life and new treatment regulations taking effect in 2021, new infrastructure is needed to ensure the continuing deliverance of quality and reliable wastewater treatment for the city.

Projects such as Saint John SCDWP will provide a benchmark for ACCIONA to replicate in other provinces across Canada. It will also be a prime example of how to combine global expertise with local partners' knowledge. In the coming years ACCIONA will continue to bid for crucial water infrastructure work that will ultimately enhance the quality of life for thousands of Canadians.

Evenden concludes: "Acciona is very excited to be onboard with our first Canadian project, and is looking forward to participating in many other Canadian water and wastewater projects over the next few years." ■







# The **BEST-LAID** Plains

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**DEPARTMENT OF ROADS**

**N**ebraska has been dreaming of a 600-mile expressway system crisscrossing

the state since the eighties.

That reality is finally coming to fruition thanks to the innovative spirit of the 2011 Build Nebraska Act and the Transportation Innovation Act of 2016.

Last fall the department announced significant investment packages aimed at helping the state achieve its goal of a modern transportation system capable of supporting economic growth and connecting Nebraska communities

Written by **Hazel Davis**

Produced by **Tom Venturo**



# NEBRASKA DEPARTMENT OF ROADS



Members of the environmental unit with the  
Nebraska Department of Roads in the field



The 2011 Build Nebraska Act (BNA) (which sees \$1.2bn towards transportation infrastructure) and the Transportation Innovation Act (TIA) look set to realize the state's goal to improve its expressway system and put another \$450m into infrastructure. 100 percent of the work on this expressway system will be in planning, design, construction or complete after the BNA/TIA.

Kyle Schneweis is director of Nebraska Department of Roads. He spent 12 years at the Kansas Department of Transportation, followed by a stint in corporate and came to Nebraska, in part due to family location and because, he says, "I missed the public sector. I missed the public policy side of things. I missed being part of a team working for the public good." The thrust of the corporate world can

be exciting. But sometimes you just want to build some bridges.

Now he's got his opportunity. Schneweis is at the helm of an \$850m budget, 2,100 employees, 10,000 miles of highway and 3,500 bridges. One might assume that coming back from corporate life to public life might be a path beset with tiresome bureaucracy.



# 800

Number of Employees at  
**Nebraska Department  
of Roads**

While Schneweis agrees there are still hoops, he says it's a forward-thinking environment.


"Nebraska is a great place to be for transportation.

The system is well-maintained and well-supported across the state. The state understands the importance and the recent commitment to capital improvements is encouraging. He adds: "Our pay-as-you-go approach helps create enduring transportation."

The department is run from its HQ in Lincoln. Central Complex



The Discovery Bridge connecting Nebraska and South Dakota over the Missouri River by Yankton




houses 800 employees with an additional 1,400 staff spread throughout NDOR's eight districts. "A lot can depend on geography," says Schneweis. "It's a rural state with 1.9m people living in a small geographical circle, our districts deal with a wide variety of issues."

NDOR's program management and project delivery teams work closely with the districts to manage asset preservation and

modernization needs and back in October, NDOR announced eight capital improvement projects for funding from the Next 10 BNA and the TIA.

This \$300m commitment is part of the ongoing effort to finish the Expressway System and create a transportation network capable of supporting continued economic growth. The announcement included twelve projects selected





for design and construction and a couple more on the planning side. “These new investments will improve safety on our highways, promote economic growth, and help fulfil the 1988 vision to expand the expressway system,” says Schneweis. “They’ll limit travel time and congestion and create development opportunities.” NDOR used the selection of the Next 10 and TIA projects as an opportunity

to roll out the department’s new project prioritization process, StEEP. StEEP, (Stakeholders, Engineering, Economics, Priorities) represents how NDOR has rewritten the book on capital improvement project selection.

Deciding what projects to focus on is a tricky process. Communities, naturally, want their project to be the one that takes top priority. “There is lot





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of interest in transportation,” Schneweis said. “We went out and asked what projects would make a difference then we asked Nebraskans to help us prioritize. I was impressed by the response. In every community NDOR went to, Nebraskans understood and appreciated what we were trying to do. They tightened their belts and made choices. We announced \$300m after having about \$8bn in requests in the first round of stakeholder meetings. What we have tried to do is focus on projects across the state that will make a real economic impact.”

Luckily, “Nebraskans are reasonable. They understand the balance of creating a great transportation system rather than a few great projects.”

There is still a lot of uncertainty in the industry but, says Schneweis, “there are real opportunities to link investments to realized economic growth”. Still, long-term revenue predictions are hard: “Technology is hard to predict and hard to know.





Nebraska Department of Roads crews work on clearing snow from the interstates as a winter storm blows through

Interstates 680 and 80  
in Omaha, Nebraska





**Nebraska Department of Roads  
Director Kyle Schneweis**



## **“Nebraskans are reasonable, fiscally responsible people. The needs of the greater good and the state can outweigh those of the local community. The people were involved in the decisions the whole way”**

With things like self-driving cars, it's hard to know where things will be, so it's about keeping your head up and not jumping too soon.”

Through it all, good supply chain management is crucial. The department has its own purchasing department and its engineering staff works closely with contractor subs and consultants, fostering good relationships. The department also has very strong links with trade industry partners and the engineering community. Schneweis says: “We've tried to focus on expanding those relationships and improving relationships with local municipalities. Having better relationships will help us make better decisions.”

Technology is key to the department's smooth running. “We use GIS (Geographic Information

System) mapping for data gathering and storage,” Schneweis explains: “This helps us make better and quick decisions and it's also a great tool to communicate information to the public. One area we're certainly trying to invest more in is business intelligence. There is so much data available for us and we need to be able to parse through that and make better decisions.”

Again, in the public sector it's difficult to know when to invest in technology. Schneweis adds: “You can drive across parts of the country where there are callboxes every few miles. That's the challenge. We have to follow the processes in place to spend the taxpayer dollar appropriately but we also need to make quicker and faster decisions.”

Recruiting in the public sector





**Governor Pete Ricketts & Director Schneweis unveiled projects funded by the Build Nebraska Act & Transportation Innovation Act**



can be a similar challenge: “We try to make sure we value our people. You need to find people who want to be a part of bettering the transport system for the public.” He said, “New employees might not cite that as a reason to join but if they stay they end up caring a lot about doing good. We shouldn’t shy away from that.”

Schneweis’s vision for the future is a positive one. “I hope we can be an entrepreneurial organization that can make nimble decisions and take calculated risks,” he says. “I want us to be as efficient

as we can be and to try and run government like a business.”

This can be tricky when there’s no competitor around. Says

Schneweis: “It’s about building a culture of entrepreneurialism and better using data to make decisions. That’s certainly one way we can do things better.”

These days the public expects the Government to engage them in the decision-making process a lot more and, concludes Schneweis, “is one area in which I expect to continue to have a role. Public opinion is very important to us”.

# NEBRASKA

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DEPARTMENT OF ROADS











# ***EXPEDIENT: LEADING THE WAY FOR DATA CENTERS***

*We speak to Jonathan H. Rosenson, the Vice President of Quality Assurance and Strategic Initiatives, to find out what makes Expedient the go-to provider*

Written by **Leila Hawkins**  
Produced by **Tom Venturo**



**C**loud computing is becoming second nature to businesses, as ingrained as processes like accounting. Data centers are growing at an incredible pace to accommodate this need for virtual space - they're invaluable resources providing fast connectivity, large amounts of storage and security.

Expedient is one of these data centers, but what sets it apart from the others is its ability to work at a local level, which bigger companies often can't do. Its 11 sites in seven cities including: Cleveland, Baltimore, Boston, Indianapolis, Columbus, Memphis and Pittsburgh provide cloud services, backups, firewall, VPN and disaster recovery. Jonathan H. Rosenson, the Vice President of Quality Assurance and Strategic Initiatives explains: "We are unique because the physical footprint of our organization is different from our competitors. Being able to provide local services is a significant differentiator for us. Half of our clients take advantage of services in at least two data centers, some of them take use three or more in order to maintain even higher availability. Our focus on infrastructure as a service has led us to build consistent capabilities at each of our locations, ensuring the availability."











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Founded in 2001, Expedient's mission has always been to fulfil clients' technological needs, even in the days before the cloud, when its facilities were equipped with thousands of physical servers. "We find that our target clients, regardless of industry and size, really need our help because of their skills gaps, or because they may have a really heavy workload" he says.

Expedient's top customers belong to the healthcare, finance, manufacturing, e-commerce and retail industries, in that order. The data facilities are located on the Midwest and Eastern US where there's a wealth of natural resources like gas and oil, so it

*If we need to buy something we have the funds available to do so, whether it's buying generators or servers*



## **Jonathan Rosenson**

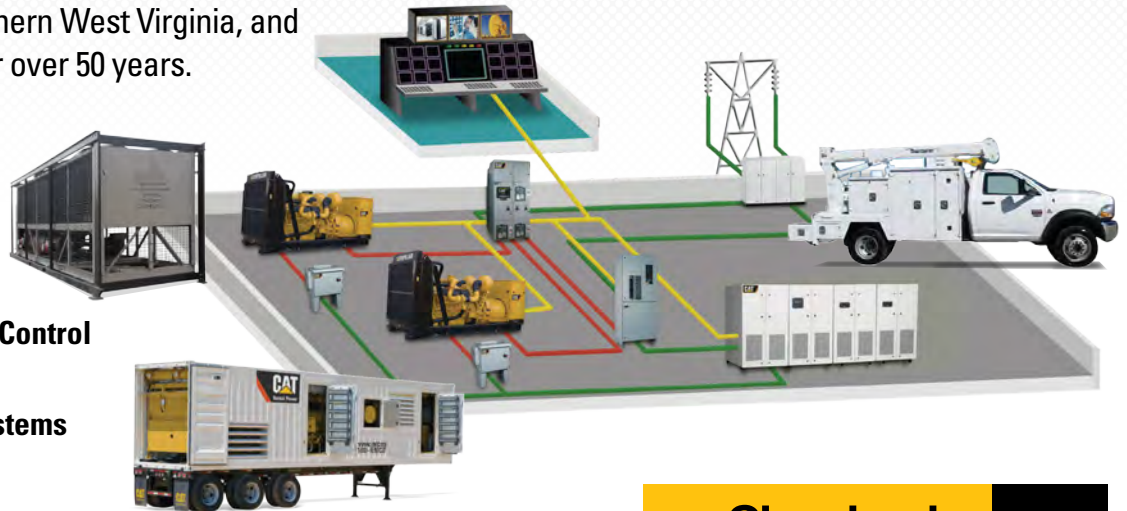
Vice President,  
Quality Assurance and  
Strategic Initiatives

Jonathan H. Rosenson has more than 22 years of experience leading customer service, project management and product management initiatives in the information technology industry. At Expedient, Mr. Rosenson provides oversight of the planning and successful transformation of business processes and organizational change.

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also has a substantial number of customers in the energy industry.

Other typical clients are engineering and law firms, and generally companies that have large data storage or transmission requirements. Rosenson says the business doesn't cater to any particular size of company. "I think the average would be under \$500 million in revenue. But we certainly serve companies on both ends of the spectrum."

Since its inception Expedient

has forged partnerships with major players in the industry, including technology multinational, Intel, virtualization software company VMware, and computing giant Microsoft. "Every single solution that we deliver typically includes some combination of those vendors whether it's discreet or not," he says.

Key to Expedient's success is building systems that competitors haven't. "One big example of that is a solution we call push button



disaster recovery,” he explains. “That’s a service that encapsulates all the components of the computing environment and literally gives [our clients] a single button to push to failover all their workloads between our data centers and clouds.” This solution in particular has won them plenty of business, because it eliminates the tedious need to reconfigure the network when there’s been a problem.

### **Cost effective**

Another key element is being financially strong. “We do not have any banking debt and most of our competitors can’t say that. If we need to buy something we have the funds available to do so, whether it’s buying generators or servers.”

Cost-effectiveness is crucial. Rosenson continues: “The converged technology that we provide enables the best performance at the least cost from a computing standpoint. That goes for the data center facility, the air conditioning, the power delivery



### **Ed Dzurko**

Director of Facility Engineering

Mr. Dzurko has Over 20 years experience in Telecommunication Facility Operations and Engineering and is currently responsible for all Facility Engineering activities at Expedient’s Data Centers. This includes Engineering, oversight, and project management for all infrastructure upgrades, renovations, and large customer implementations. He was part of the team that established our first Data Center at 810 Parish Street and he continues to design and build as well as upgrade all of the facilities to support Expedients growth needs to meet our customer demands.



### **Christopher Topoll**

Manager - Data Center  
Operations

Christopher Topoll brings 14 years of experience in the nuclear and data center industries to Expedient. Chris is responsible for operational excellence in Expedient's 11 data centers, ensuring continuous availability of the electrical and cooling systems. Prior to joining Expedient, Chris worked as the Facility Operations Manager for Bank of America's Global Data Centers working out of Plano, TX. Chris has eight years of active duty experience as a nuclear submarine officer in the US Navy and is a serving Navy Reservist.

mechanism, through to the servers and the virtualization software.”

Sustainability plays a big part in this. At each of its centers the company has implemented measures to make sure utilities like lighting and heating are energy-efficient. “The thermal optimization is essentially using best practices so that the ambient temperatures are as high as they can be, but still have a relatively balanced environment,” Rosenson says. “We use data center infrastructure management software in combination with sensors throughout the facility. The energy-efficient lighting is certainly important, relative to only having lights on when people need them. And then finally we recycle the hardware we no longer need, either scrapping it via a third party or taking it to a recycling center depending upon the nature of the equipment.”

Chris Topoll, Manager of Data Center Operations, adds: “We have deployed a very robust sensor





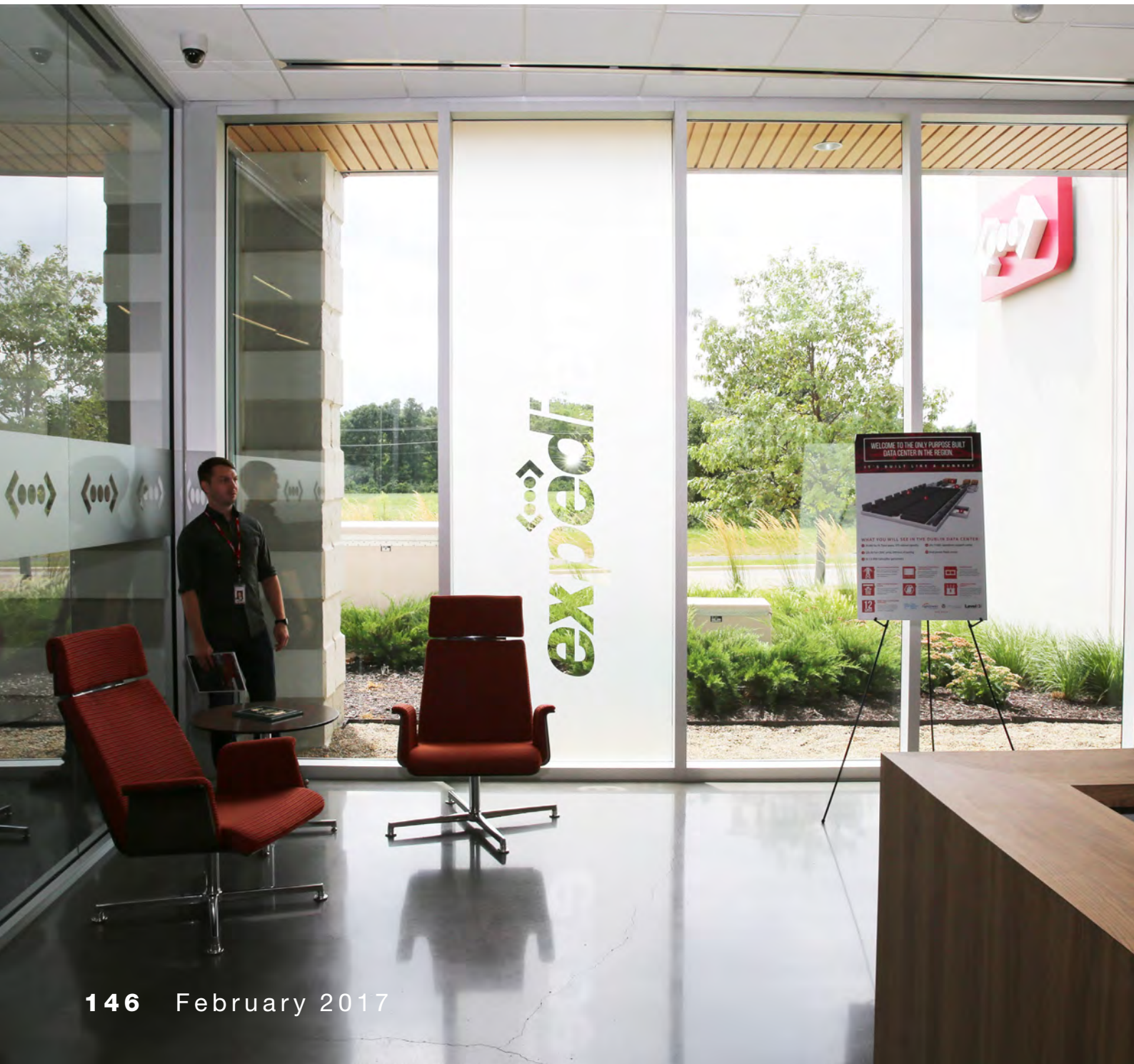
network throughout our data centers that allows us to review data throughout the location, and we can control the air flow and cooling capacity based on those reports. We implement highly sophisticated software with the HVAC manufacturer's help that allows the units to do precision cooling to our specific requirements, so we don't over-cool or over-humidify and optimize energy usage."

## Excellence

Rosenson says another area where the company differs from its rivals is "operational excellence, and that is through a combination of people, processes, procedures, and continuously measuring those and improving them, so that doing business is as effortless as possible for our clients."

Expedient spends well into the six figures on the training of its 300-plus staff each year. This includes technical training and leadership development, as well

*“Anything technology or infrastructure-related, we can help by complementing a customer’s applications, giving them the platform and the environment to operate reliably for the best performance possible”*





as running a tuition reimbursement program for employees who want to get a post-secondary education.

The protection of data is paramount, so Expedient follows standards of compliance according to industry and government regulations. These include the Health Insurance Portability and Accountability (HIPAA), which means it abides by the U.S. Department of Health rules for patient confidentiality, and the Payment Card Industry compliance (PCI), ensuring card payments are completely secure. As some clients operate within the European Union, the company is part of the EU-US Privacy Shield program, a significant requirement for customers so they can be certain the personal information of EU individuals is kept safe.

Rosenson says the most important thing about Expedient is working with the customers to get what they want. “Based upon their

unique business needs we try to classify the outcome into four main areas. Our customers are looking for agility, so they can respond faster to change and we can help them with that. They’re looking for availability, because they need to make sure their applications are always reliably available to their customers. Cost control, to be able to have a predictable monthly operational expense, and not have to employ capital as often, and align that operational expense with customer demand. And then finally the risk mitigation, complying with government and industry mandates.”

In essence, Expedient’s remit is to help. “Anything technology or infrastructure-related, we can help by complementing a customer’s applications, giving them the platform and the environment to operate reliably for the best performance possible,” Rosenson concludes. ■



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