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THE POWER TO DO MORE

Dell OEM Solutions is dedicated to helping its global customer base of original equipment manufacturers accelerate their time to profit and success by providing customisable technology solutions to their businesses.

Images by Nathan Hall

In 1984, a young American by the name of Michael Dell had the foresight and vision to launch a company that would change the way computer technology was designed, manufactured, and sold in the future. The 19 year old founded Dell with US\$1,000—then doing business as PC's Limited. After only months of operation, he introduced his first complete computer system to the world, the Turbo PC, and from there things started to fall into place.

Recognising that there was a need in the industry for a better customer experience, Dell was the first to offer risk-free returns and at-home, next-day product assistance for customers. This would be Dell's point of difference in the market, and it proved to be an incredibly successful approach.

In the years that followed, the business experienced rapid growth—roughly 80 per cent annually—before renaming to Dell Computer Corporation and taking the plunge to go public in 1988. With its newly acquired capital of US\$30 million, it was able to expand its product offerings and make its presence known in other countries around the globe, opening a subsidiary in the United Kingdom and later a manufacturing centre in Ireland to better serve its clients in Europe, the Middle East, and Africa. Its first laptop computer, the 316LT, was introduced in 1989, and three years later the company debuted on the Fortune 500 list. Dell became a household name.

In 1993, Dell joined the ranks of the top five computer system makers in the world and made its entry into the Asia-Pacific region, opening subsidiaries in Australia

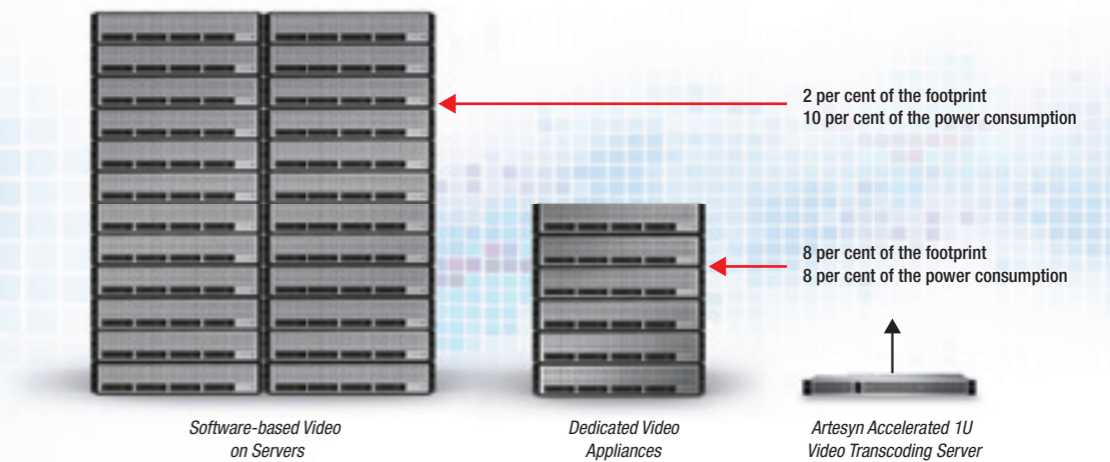
and Japan. It launched its website Dell.com and started to sell its products via the internet as well as instore. After only six months online, it was the first site to hit US\$1 million worth of internet sales in a single day. By the time the early 2000s rolled around, Dell was the number one computer systems manufacturer in the world. During this time, Dell had evolved from being a PC manufacturer to being a true end-to-end solutions provider. Dell made significant investments in building its server, storage, and networking business in the enterprise space. Dell also established a strong services practice as well as a software business to give it the breadth and credibility with enterprises.

Over the years, Dell made several strategic acquisitions to build differentiated IP in key areas. In 1999, the company launched Dell OEM Solutions, a business unit >



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specifically for original equipment manufacturer customers. Its aim was to help companies take their own products to market more effectively by leveraging Dell's solution and supply chain. Today, Dell OEM Solutions looks after almost 4,000 organisations across more than 40 industry verticals and builds its hardware, software, and services into the client's already existing ideas. Its operations include but are not limited to providing cloud solutions and mobility applications to the telecommunications industry, magnetic resonance imaging (MRI), and digital imaging to the healthcare field, and video surveillance and contaminants monitoring to the aerospace and defence sector.

Dell OEM Solutions has a support system that extends over 180 countries, giving it the breadth and ability to manage its services from the data centre to the end point. It perfectly complements the

overriding operations of Dell and aligns with the aim of using technology to empower countries, communities, customers, and people everywhere to realise their dreams.

In February 2012, Dell appointed Joyce Mullen to the position of vice-president and general manager of the global OEM Solutions division. In this role, she is responsible for leading a global team of sales, services, operations, product development, engineering, telecommunications, and marketing professionals to provide customers with the benefits of Dell's world-class supply chain, support network, and engineering solutions. Furthermore, she develops strategies and execution plans to ensure Dell works in collaboration with its most strategic industry partners and leads the Internet of Things go-to-market strategy.

Joyce has been with Dell since 1999. She has ample experience

and is well prepared for whatever demands come her way. Prior to her current role, she looked after the strategy development and operational excellence of Dell's Large Enterprise business unit, a division which delivers open, capable, and affordable solutions to large corporate IT users. She has also worked in Dell America's software and peripherals sales and sales operations, as well as Dell Services sales and delivery.

Currently, Joyce sits on the board of directors of the Capital Area Food Bank (CAFB) and the Telecommunications Industry Association (TIA). She previously served on the board of the Austin chapter of the March of Dimes, and was founder and co-chair of Women In Search of Excellence (W.I.S.E.), a group developed to empower women within Dell. In addition, Joyce previously served as co-founder and chair of the Brown School of Engineering Corporate Affiliates board, and was founder and co-chair of the Forte Foundation, a non-profit group encouraging the growth of women in business.

The Dell OEM Solutions team, led by Joyce, manages the design, manufacture, distribution, and support of hardware for clients so that they have more time to focus on their customers and on bringing their own optimal solutions to market. The business division utilises Dell's expert tier-one OEM technology as the foundation and then customises systems according to what is most appropriate for the customer's intellectual property. Dell OEM Solutions is the only manufacturer in the world that offers a single source for comprehensive, end-to-end OEM integration and a global supply chain.

When Joyce took on the task several years ago to play a part in running the global OEM Solutions division, she realised that there needed to be a strong sense of purpose and drive among the people within the organisation in order to achieve its goals.



"I joined an organisation that had been in existence, at least in the United States, for some time," she says. "It had been around for 13 years or so, although it was relatively newer in Europe and Asia, probably two and three years respectively. It was very clear to us that the digitisation of the economy, and the world, was well on its way. When we think about the mission of our team, which is basically to provide technology to customers that are building solutions, it needs to be bigger than just a technology component. The companies we help are building magnetic resonance imaging machines and cancer treatment solutions, or they're building satellite launching devices or submarine command and control systems, for example. They're doing important things.

"Computers go into a variety of solutions, so our mission was, and is, to be the best supplier and the best partner to these companies. We have to provide them with a full suite of technologies and

solutions from end user to enterprise solutions and, frankly, to be the biggest end-to-end solution provider. With that, of course, comes a series of financial targets, coverage targets, and penetration targets."

Joyce says she could see numerous opportunities for herself and for the company as a whole when she was appointed. She knew the OEM industry was an untapped market that could be served with the right strategy.

"The market is at about US\$100 billion and is growing faster than the IT market overall, and we saw a couple of different opportunities," she explains. "First of all, it is a very, very fragmented market. We saw an opportunity to expand into some of the biggest industry sectors such as telecommunications, industrial automation, healthcare, among others. The one I would call out is the telecommunications market. We have been working very diligently over the last three years

to shore up our product and solution capabilities with the right industry certifications and go-to-market model.

"The second opportunity is more of a recent phenomenon, the Internet of Things (IoT). We realised that we had been provisioning IoT for our customers, particularly for those who have been in the data monitoring and sensing businesses working with the operations technology side of their house. For example, if you manage an oil refinery, there are a lot of sensors in that environment, and they have been collecting that data for a long time and using it to manage those facilities. But again, the digitisation of that environment represents an enormous opportunity to cost-effectively collect the data, analyse, and deliver insights that result in >

"There are few industry examples which better illustrate the power of symbiotic partnerships than that between Avnet and Dell. From Avnet's perspective, it truly enhances our ability to offer flexible, end-to-end services that let our customers seamlessly accelerate their time to market." - John Salemme, VP and General Manager, Avnet Embedded

"Computers go into a variety of solutions, so our mission was, and is, to be the best supplier and the best partner to these companies."

- Joyce Mullen

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significant economic value and superior user experience. That is certainly the second area which we have been very, very focused on in the past couple of years.”

Dell is taking a pragmatic approach to the concept of IoT and is helping customers leverage existing equipment and data to make the most of current technology investments. Dell’s customers can take advantage of advanced analytics scenarios that span gateways, data centres, and cloud to drive action and results. Dell provides a launch point to develop applications that are compatible with multiple operating

systems to start small, build fast, and create an ideal ecosystem to connect what matters.

Joyce says she sees other areas of growth in the medium- and long-term future of the company. First, she believes that Dell OEM Solutions needs to evaluate some of its business models in order to better support its customers.

“With the traditional businesses, we sell them a server, we put it into their solutions, and we provide them with terrific services,” she says. “We become their supply chain and their engineering team from a hardware

perspective, and they focus on the software. That’s worked extraordinary well for us. With the advent of new technologies and the capabilities that are now offered via the cloud, customers have to manage and operate their solutions from mobile devices. This creates an opportunity to change Dell OEM Solutions’ business model to be more effective in meeting their needs.

“There will always be a significant business on premise, as we call it, and I think more and more of that capability can be managed from a cloud. Whether that is a private cloud or a public cloud or a combination of all kinds of clouds is really dependent on what the customer is trying to do. There is an opportunity to improve infrastructure utilisation by virtualising those environments and operating from a cloud-like environment. That will help to reduce the installation process and improve the availability.”

Joyce adds that the biggest challenge to realising that utilisation is security. “That is one of the things that we are seeing

now with our customers, and we are trying to drive this conversation to a certain extent. Over the past six years, Dell has bought about US\$18 billion worth of companies through our acquisition strategy in an effort to become a more capable end-to-end solution provider. Roughly a third of those investments have been focused on security.

“I think we are very well positioned to offer a good, better, and best solution to our customers with minimal or maximum levels of security surrounding those solutions. That again really depends on the environment that they are serving, how vulnerable it is, how interesting it is to hackers and cyber criminals, and also how many times these types of things sit inside of an envelope which is a more secure envelope but they, the customers, are building it themselves. Security is the biggest opportunity there is, and I am excited about the kinds of assets that we have acquired at Dell to help solve some of those problems.”

In April this year, Dell OEM Solutions partnered with Milestone Systems to launch a new range of fully integrated security and surveillance bundles. Made available through ADI Global Distribution, the programs are pre-packaged with optimised configuration and have pre-installed software. It removes the need for clients to source the different elements from a range of vendors and meets the demand for lower-cost ‘plug and play’ solutions.

A major contributing factor to the success of Dell OEM Solutions throughout its existence has been its long-running global partner program. Consisting of channel partners and solutions partners, the program taps into unparalleled manufacturing and supply-chain expertise in order to bring the most value to original equipment manufacturers. Joyce says the relationships with both suppliers and customers are built on trust, hard work, and common goals.

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“If I start with Emerson, Emerson is a long-time customer, and this relationship is indicative. We work at our best and we provide the most value when we start at the pre-design of a solution with our customers. That’s when we can figure out exactly what they are trying to do and we can offer the best technology solution to them. We understand the requirements for stability or the requirements for reliability very early on because we can then make better recommendations about the parts they should use or the configurations that will be best for what they are trying to achieve.

“We have also been working with Emerson in a more collaborative way around making sure that their business processes around forecasts and order management are lined up with ours. That means that we can manage some of those tricky transition periods where one product stops and another one starts. You always want to end up

with no inventory, but you never want to be short of inventory, not even for a second.

“That kind of collaborative effort is crucial. If you think about excellence of business processes inside Dell and excellence of business processes inside Emerson, they are different; but then if you put those two things together, there is work required to make those intersections seamless. That is the work we are doing with Emerson and it is fascinating. The results are very, very encouraging, so we are really thrilled about that.

“We have found some gaps through value-stream mapping exercises across the two companies, which is terrific. That has been a very effective partnership and continues to yield really strong, good improvements in areas such as inventory reduction, scrap reduction, and more. >





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“Then, to expand our capability outward, we implemented the partner program with two goals. One goal is to expand our coverage and reach, because there are so many opportunities where all of these markets are moving to us, where Dell can play. We can’t cover every opportunity, so we rely on almost 30 original equipment manufacturer channel partners who can help us go after some of those customers and to represent our capabilities at Dell.

“Our capabilities and our partner capabilities combine to meet the requirements of customers, so we manage them through the Dell partner program enablers and the systems that have been built for the broader Dell network. Then we apply them to our special and unique OEM channel partners, and that works quite well.

“The second objective with the partner program is that there are some services that we can’t provide. If somebody wants to be able to pick up their products every Thursday at 2 pm in, for example, Claremont, California, then we need a partner to do that because we aren’t able to cater for that demand. Our partners provide some services that are just outside of Dell’s scope of capability, which ensures customers get exactly what they need. Again, it’s back to that very collaborative approach to work that drives the most efficient businesses across the two companies to deliver optimal results for the customer.”

Dell OEM Solutions has around 30 partners, most of which are regarded as crucial and strategic to operations. “Intel and Microsoft are both premier partners, and Dell has broad relationships with

“Our capabilities and our partner capabilities combine to meet the requirements of customers.”

- Joyce Mullen

them globally and across various business units. In the OEM space, we have also developed strong partnerships and go-to-market motions with the embedded side of their businesses. For example, Intel has been a great partner in jointly building out the Internet of Things opportunity with Dell OEM Solutions.

“Red Hat is another very strategic partner for us as we work in the telecommunications space around network functions virtualisation (NFV) and also with some of our open-stack solutions. We also have a few partners that we spend more time with, and I would say that those suppliers are really critical to helping us build and formulate our solutions that we then take to market. I call the critical partners who help us get to the market and help deliver capabilities to our customers ‘go-to-market’ partners.”

Dell OEM Solutions has an incredibly broad portfolio of technology. Its range includes desktops, laptops, workstations, x86-based rack, tower, and blade servers and storage, as well as the full complement of software and peripherals in the final end-user solution. In addition to standard Dell-branded products, original equipment manufacturers can leverage offerings specific to their needs, including unbranded products, long-life products, and fully customisable products.

“We are really a dedicated organisation that helps global customers basically accelerate their time to profit by providing really fantastic customisable solutions,” Joyce says. “We believe that we are the only manufacturer that offers a single source of end-to-end integration with global supply-chain capabilities, and we have done it for a long time.

“The message for these customers is pretty clear—if you have a solution that requires some technology, why not leverage the heck out of our supply chain and our purchasing power? Why not take advantage of the fact that we have over 620 global parts depots around the world so you don’t have to stock parts yourselves? Why not take advantage of the fact that we have a dedicated team of engineers who are available to customise and tweak those technologies so you don’t have to invest in engineers to do exactly that?”

“Then you can take advantage of the fact that we have experts who understand what it is like to bring products to market in the telecommunications space, or in the healthcare vertical, or the industrial automation industry, or perhaps the video surveillance market. Our customers do not necessarily self-identify as technology companies or IT companies; our customers are healthcare companies, or retail companies, or point-of-sale companies. Whatever they are, we need to make sure we speak their language and understand their



market. We have fabulous customers. Our customers teach us so much every day, so it’s fantastic to be helping them with what we do.”

Looking forward to the next 12 to 18 months, Joyce says that Dell Global OEM will be focusing on building further on its strong foundation. “If I look at the top three priorities for us, these would be, first, Internet of Things; second, around security along with cloud; and third, around delivering improved efficiencies and total cost of ownership to our customers through our strong supply chain. We see a huge opportunity to lead the industry in deploying Internet of Things, and in helping customers realise the benefits from connecting end points, capturing and analysing the data they generate for key insights that can then be monetised in various ways.

“The second area of opportunities is around cloud and security. The adoption of cloud is changing the dynamics of business and bringing about new delivery models for software and applications—be it private, hybrid, or public cloud. We see this as an opportunity to guide our customers to the delivery models

that best meet their business objectives and help provision these. Cloud and the IoT with all the connected devices opens up new vulnerabilities into these environments to things like cyber intrusions—we hear of these things almost every day now. Our customers are looking for ways to secure their infrastructure and data in a manner that does not impede growth in their business.

“We are also seeing governments across the world implementing new policies and mandates around security, so our customers are also trying to figure out how to stay compliant. Dell is in a unique position to help provide various levels of security based on the unique needs of each customer. Dell has probably the best security portfolio with leading-edge solutions, some of which are integrated into our platforms and engineered to work better together.

“The third area for us really leverages Dell’s history of being excellent at supply chain, as well as being operationally excellent to deliver industry-best TCO [total cost of ownership] to our customers. That is a huge element of the value proposition that our >



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customers are interested in. These customers can either make their own computers or get them from somewhere else, but one of the ways we differentiate from others is that we have a very effective and efficient supply chain. Having said this, we always have to stay ahead of the game because our customers are purchasing differently today compared to how they have been in the past.

“About five years ago, we had a handful of customers who wanted to figure out how to purchase globally and figure out how to ship globally. I would say that nowadays well over half of our customers are interested in that capability because the world is smaller and everybody wants to expand. In terms of logistics, everybody is interested in the shortest possible supply chain to meet their requirements. There are also certain countries where value-added tax and other taxes make it virtually impossible, rendering you uncompetitive if you don't source locally.

“The global supply chain capability is a differentiator for us, but we have to keep getting better. We continue to work at how to make things easier for our customers and make our operations a little bit more seamless. We are also working towards having every factory in every region operate with the same systems and processes so that the output is identical for all of those customers who operate globally. Our customers need varying levels of customisation, and we want to continue to improve the efficiency and to reduce cycle times.

“Dell has realised the benefits of this highly efficient supply chain over several decades, and our OEM customers can realise the benefits of industry-leading TCO and operational efficiency in their business as well.”

Joyce anticipates that the industry of consumption will experience significant change as time goes on and that this will lead to trends which Dell OEM Solutions is well

“We always have to stay ahead of the game because our customers are purchasing differently today compared to how they have been in the past.”

- Joyce Mullen

suiting to take advantage of. The communications industry is a standout and requires solutions such as cloud, data centre hardware, global manufacturing, integration and support, mobility applications, security, 'carrier grade' servers and storage, as well as dedicated operational expertise.

“There is an entire movement towards standard product, or x86-based product, and that is a great thing for us,” Joyce adds. “Dell is not a proprietary house. In other words, we like to build things that are based on open standards, that can be modularly installed and expanded, and that sort of thing. If you think about the opposite view of that, then you're thinking about some of the very proprietary communication solutions that are on the market today. We are the exact opposite to that.

“So the move towards x86 is a very, very good thing for Dell. This is where we play, this is where we like to play, and this is where our economies of scale are. This is the way we can bring our global supply-chain capabilities or our global support capabilities to customers, and this can really improve the efficiency in the total cost of ownership of the solutions to our customers. That is one serious area.

“The second one is, of course, the Internet of Things. There are computers and things today that we didn't even dream would be here five years ago. We have solutions that help monitor when a ball crosses the line of a soccer goal, for example, and we have solutions that help patients monitor their vital signs after they have been released from the hospital, using portable devices. We have solutions so that the doctors are aware of how patients are progressing, and we have solutions that are helping with cancer treatments all over the world.



“It's those kinds of solutions that are becoming much more prevalent, and there is a play there for technology and technology suppliers. All you have to do is walk through the airport to see examples of devices and machines that capture data—everything from the screening equipment to the kiosk. Whether your experience with the screening was positive or negative, they all have computers in them, and those types of trends are very good for our type of business.”

For the past 16 years, Dell OEM Solutions has been catering to the technology needs of organisations across an array of industries from all over the world. As a business unit, Dell OEM Solutions builds hardware, software, and services into its original equipment manufacturer client's already existing capabilities in order for them to quickly go to market, make a profit, and achieve success.

With the world constantly evolving and technological advancements happening all the time, Dell OEM Solutions is at the forefront of upcoming trends and innovations. It is committed to enabling its customers to do incredible things in the noted industries and to use technology to solve problems that were not considered possible before. The future is bright, and Dell OEM Solutions is ready. •

“We are proud to have a partnership with Dell. Working with them has allowed us to bring our innovative technology to a global market. Our relationship has helped Dell deliver more compute power for network applications.” - Henrik Brill Jensen, CEO, Napatech

COLLABORATION TURNS DATA INTO INSIGHTS

Together, Intel and Dell are enabling the IoT data revolution that is transforming entire industries

The Internet of Things (IoT) is rapidly taking shape, and many businesses and industries are looking for how they can use it to drive innovation, improve efficiency, and increase productivity. However, the IoT isn't an off-the-shelf technology you can plug in and instantly realise value. To bring together the necessary technology and integrate it into their operations, businesses are turning to solutions using components from Intel and Dell, two companies known for innovative technologies and services.

To solve the intricacies involved in collecting data from the edge, Dell, a Premier member of the Intel® Internet of Things Solutions Alliance, works closely with Intel to contribute powerful solutions for the entire IoT data cycle (Figure 1). These solutions include the analytics and data visualisation tools necessary to turn massive amounts of data into new insights and opportunities.

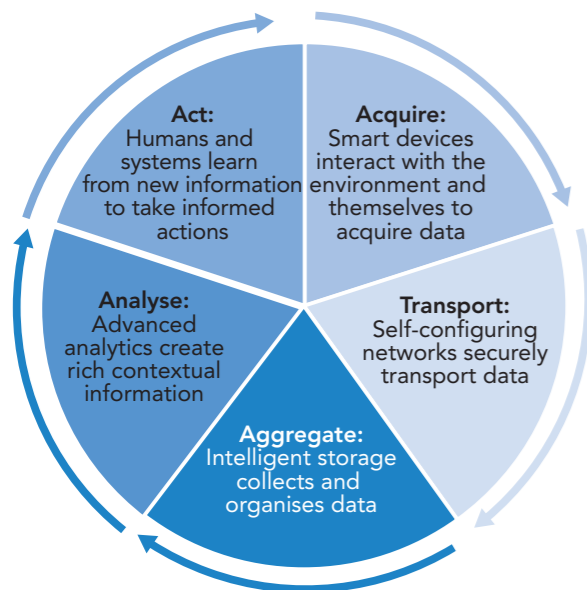


Figure 1. Dell provides solutions for the five elements of the Internet of Things data cycle required for creating value from edge data.

End-to-End IoT Solutions Require End-to-End Experience

For companies ready to start IoT implementation, Dell is one of the few tier 1 information technology suppliers with assets in each of the critical categories for an end-to-end IoT solution, including security, data acquisition and transport, analytics, and deployment services (Figure 2). To provide leadership in the IoT space, Dell is working with Intel to develop and deploy solutions providing building blocks for the Intel® IoT Platform, an end-to-end reference model. This year Dell formed a new IoT division devoted to the hardware, software and services for end-to-end IoT solutions.

Initially Dell is targeting projects involving industrial automation, oil and gas, healthcare, and smart buildings. Working with Intel enables Alliance members like Dell to speed to market a broad spectrum of interoperable, cross-ecosystem IoT solutions.

The Dell IoT Gateway

One of the first products available from Dell's new IoT division is the Dell IoT Gateway (Figure 3). Dell's gateway utilises hardware and software technologies from the Intel® IoT Gateway reference design to provide customers with the end-to-end connectivity, security, and manageability needed to realise an end-to-end IoT vision.

This compact device fills a critical gap by enabling connection of new and legacy edge sensors and devices. Easily mounted on walls and other surfaces, the Dell IoT Gateway enables data to flow seamlessly and securely between these edge devices and the cloud, making it easier for businesses to manage data and deploy at-the-moment analytics at the edge. The unit has no moving parts and is built to provide years of high-performance service.

The Dell IoT Gateway features an Intel® Celeron® processor with two cores, enabling it to drive a wide range of IoT applications including building and industrial automation. It is compatible with multiple operating systems including Wind River Linux, Microsoft Windows Embedded (and the upcoming Windows 10 IoT), and Ubuntu. Using it, companies can build end-to-end IoT solutions based on Dell and Intel® technology that deliver the connectivity, security, and manageability needed to realise a full IoT vision.

Dell is also working with Intel in many other areas of the IoT from edge to cloud. Let's look at several of these.

IoT Solution Blueprint for Manufacturing

Many machine tools that could be the source of Big Data for business insight operate in isolated silos, making it a challenge to collect, analyse and act on data across the factory floor.

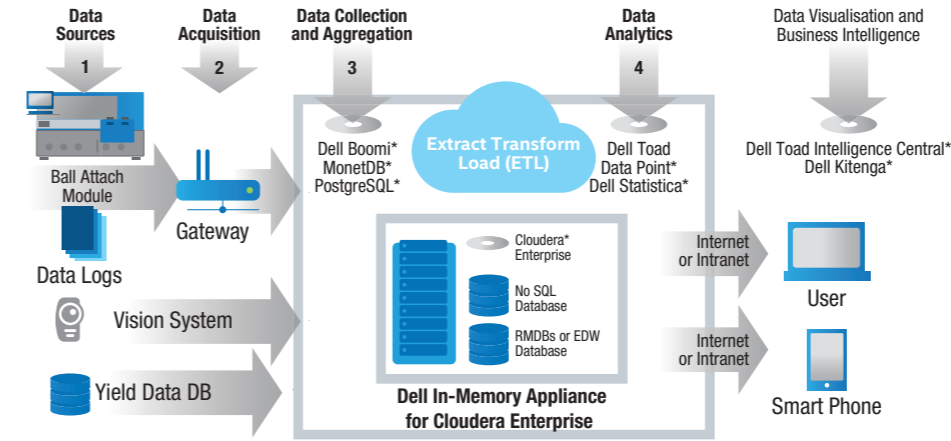


Figure 2. Example of an end-to-end Big Data IoT solution using a wide range of Dell solutions.

Dell and Intel have assembled a blueprint for the industrial market that provides the necessary connectivity, security, interoperability and analytics capabilities (Figure 4). The solution is similar to one Intel implemented in a pilot in an Intel manufacturing facility that is forecasted to save millions of dollars annually, delivering substantial return on investment.



Figure 3. The Dell IoT Gateway enables "things" to cloud connections.

The success of this first installation led to a second at the iconic U.S. Grant Hotel in downtown San Diego. The sensors and gateways there are delivering real-time data that is already showing value in identifying potential utility and maintenance savings.

Internet of Things Lab in Silicon Valley

An Internet of Things Lab jointly funded by Intel and Dell enables customers to explore, test and deploy IoT solutions that can drive business outcomes and accelerate time to market. Customers can build, modify and architect new IoT solutions on active bench space within the lab to demonstrate large workloads, connectivity, and data modelling and extraction on Dell's end-to-end solutions. These solutions include Dell Storage as well as Dell PowerEdge servers and blade servers utilising Dell Software solutions.

Transform Your Business with Dell IoT Solutions

Learn more about how Dell IoT capabilities can help your organisation develop a solution that delivers new efficiencies and innovations. Start with a look at the Dell IoT Gateway at: intel.com/SD-dell-IoTGateway.

Dell is a Premier member of the Intel® Internet of Things Solutions Alliance. Microsoft is an Associate member of the Alliance. OS/soft is a General member of the Alliance. From modular components to market-ready systems, Intel and the 350+ global member companies of the Intel Internet of Things Solutions Alliance provide scalable, interoperable solutions that accelerate deployment of intelligent devices and end-to-end analytics. Close collaboration with Intel and each other enables Alliance members to innovate with the latest technologies, helping developers deliver first-in-market solutions.

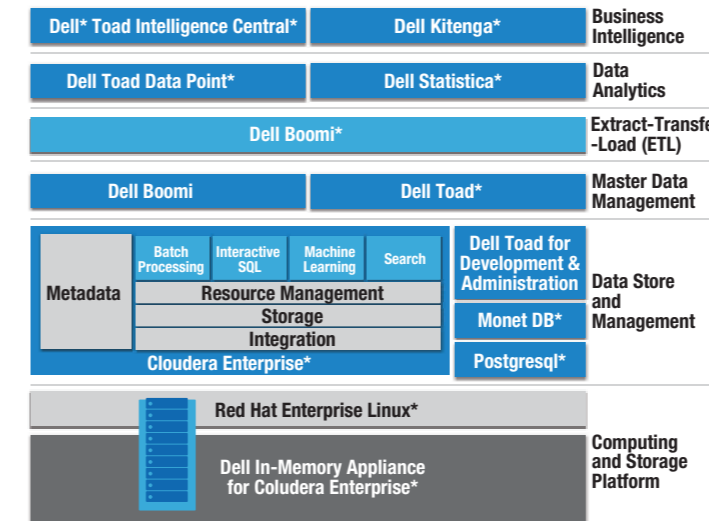


Figure 4. The IoT Solution Blueprint includes Dell's comprehensive software stack for Big Data analytics servers.

To find out more about Alliance member solutions, see intel.com/iotsolutions-directory.

