IoT market developments

WebNMS was established in 1996 as Zoho Corporation's Service Provider Software division, specialising in solutions for multi-vendor network management, service orchestration and Internet of Things (IoT) enterprise applications. The company has more than 25,000 deployments around the world, and continues to forge ahead with growth in new areas. Amy Saunders met with Prabhu Rakmachandran, Director of WebNMS, to discuss the company's activities within the enterprise field, and how the IoT market has developed in line with technological advancements.

Question: What can you tell us about the founding and development of WebNMS?

Prabhu Rakmachandran: WebNMS is one of three divisions of Zoho Corporation, and was established as its Service Provider Software division in 1996. The company has grown organically, with no external capital injections, since its inception.

Initially WebNMS' focus was on telecommunications, selling to equipment vendors like Cisco, Juniper, Nokia, Siemens, and so on. Today, we have more than 350 equipment vendor customers. When those companies sell their equipment to telecommunications service providers like Inmarsat or ViaSat, WebNMS provides the software to manage and control that equipment. We could be talking about thousands or hundreds of thousands of devices in the field. Those equipment vendors don't usually have much software expertise, so they buy our software and customise it to make their own solution. After a few years, we also started to sell our software directly to the service providers.

In 2009, we started working on the IoT. Up until this point, we'd been selling to modem, antenna and base station vendor customers, so it seemed like a natural evolution for the company. After a couple of years, we started to release products into the IoT space, and today we have an IoT platform that customers can purchase and use to rapidly build IoT applications. Most of these applications are used in remote locations, making satellite connectivity a must.

Question: What services and solutions does WebNMS provide?

Prabhu Rakmachandran: Within the IoT area we have our platform, which other developers use to develop their own applications, much like Sony uses the Android platform and customises it for its own purposes. The platform allows secondary developers to achieve their goals in a couple of months, instead of spending a year or more on development.

The IoT encompasses a massive array of things. It starts from the sensors on the equipment, which should be connected locally to centralised software, with communications taking place through the Internet or via satellite. Our platform has integrated sensors for fire and smoke detectors, liquid level sensors, and speed and movement detectors, so if someone wants to develop an app for remote monitoring, they need not worry about how to get this information from the machines.

This means that the sensor vendors have become a part of our ecosystem, by becoming certified with our platform. The benefit to them is that they can go and sell to an oil and gas company, for example, and then tell that customer that they can use our platform to start building an app to process their data. Big sensor vendors already have their own software, but with the growth of the IoT, there are a lot of start-up companies eager to join the marketplace as soon as possible. That's where we come in.

Today, we have around ten ready-made applications that are good to go, including applications to monitor ATM
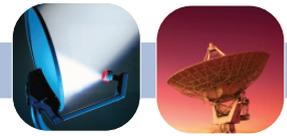
Prabhu Rakmachandran, Director of WebNMS

sites. We also have a toll road monitoring system that comes under the Smart City banner. The digital sign boards at toll roads, which provide information like temperature, wind speed, traffic etc., need to be working 24/7. Satellite is used to ensure full reliability, and our solution monitors that. We have a mixture of private company and government customers for those types of applications.

Question: Where does WebNMS see itself within the market?

Prabhu Rakmachandran: We've always sold B2B, that's where our strength lies: We won't be looking at the consumer market in the foreseeable future. The requirements to operate as a B2B platform vendor are very different from a B2C platform vendor. Our vertical markets include retail, logistics, Smart Cities, oil and gas, and manufacturing.

There are hundreds of companies that provide IoT solutions, including around 100 companies in the enterprise sector. Within those 100, there are one or two dozen companies with a similar focus to us. Our close competitors are ThingWorx and Pacific Controls. There aren't many companies who address the same problem as us and provide a platform to meet those needs. There are many vendors who sit one level away from us, mainly IoT analytics vendors and IoT cloud infrastructure providers, but they offer a different service from us that can't be integrated with other external systems. So while on paper it looks like there are hundreds of companies offering the same services as us, that's not the case.

Despite the massive increase in

education, if you look at the IoT as a whole market, adoption is still very low. Market shares haven't really been established yet, and we don't see competitor companies as a threat. In fact, if there were more competitors, that would actually be beneficial for the market, as the IoT is so new that they'd be raising awareness of its value.

Question: What benefits does the IoT bring to enterprise customers?

Prabhu Rakmachandran: When it comes to the IoT in the enterprise market, for us, there are three important things to look at: Tracking, remote asset monitoring, and energy management.

How do you keep track of assets? Assets are expensive, but sending people to them is also expensive, so the IoT is an ideal solution. One example is fishing vessel tracking. In many regions, the fishing industry is dominated by corporate companies that employ people to do the fishing for them. Problems arise when those employees' cross international borders and find trouble there. With the IoT, these boats can be tracked to prevent such mistakes.

There's also remote asset monitoring. We can monitor fishing boats, oil and gas vessels, construction equipment, and so on. For these needs, we do fire sensing, smoke detection, movement detection, fuel management, remote surveillance, flooding, security, etc. There's a lot of expensive machinery that needs monitoring for wear and tear, and friction and coolant oil, for example, but if you wait for that equipment to be manually checked by an employee, you risk the project halting due to expensive repairs from improper maintenance. The human factor is both expensive and, in some cases, unreliable.

Asset security is one particularly important side of remote asset monitoring. We can use vibration sensors to detect when someone is trying to break into a system, like a door or a room. We can take a video capture and send it to the operators or local authorities so that they can see what is happening and respond accordingly.

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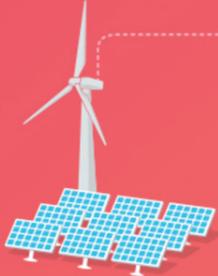
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Energy management, including energy theft and energy wastage, is an extremely important aspect of enterprise operations. Within the energy sector, we look at power grids, diesel, solar, wind farms, literally every energy source.

Companies operating remote sites usually outsource their maintenance to a local company, which opens the door to energy theft. If an employee fills a machine with 50L of diesel, they could claim that they had filled it with 80L, and retain 30L for themselves. There's no way to monitor that without liquid level sensors, which can sense how much is really filled; that data can be communicated back to a central hub with the IoT, and any theft is detected.

As another example, in many remote locations around the world, banks rent small rooms to house their ATMS; in India, 90 percent of banks do so. Since network connectivity is poor, these ATMS rely on satellite connectivity to function. Our IoT solution monitors not only the ATM, but also the room the ATM is housed in, including the lighting, the humidity, energy consumption and so on, which is usually powered by a diesel generator. If the energy consumption of a particular ATM is significantly above the average threshold, we can identify it as a position with a possible energy theft.

Remote sites by their very nature suffer from energy waste and energy-related accidents. One of our popular IoT solutions monitors power lines. Sometimes a wire becomes damaged in the line, and the line fall can fall in nearby water, causing accidents. For power companies, it can be very difficult to pinpoint the location of a fault like this. Sensors have been available on the market for the last 20 years, which can be hung on a power line every 10Km, and can identify if there is a fault between two sensors. These sensors use a visual indicator, a blinking light, so employees can drive around and check to see if any of the sensors have identified a fault. We partnered with one such sensor company, and now, as well as the sensors, a small gateway device can be hung from the lines, which communicates via satellite if there is a fault and culminates in an alert delivered via mobile app.

Across all of our energy markets, we've found that our customers can use the IoT to save 20-30 percent of their costs. There are massive operational cost savings to be made, especially in

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the form of wages, up to around 40 percent. When you combined tracking, remote monitoring and energy, you can deliver a lot more value than any one solution alone. We try to provide a solution for the entire operation, including manufacturing, storage, logistics, through to end customer delivery.

Question: How has the IoT industry developed since WebNMS entered the market?
Prabhu Rakmachandran: We entered the IoT market in 2009. In 2009-2011, we were forever explaining to customers about the IoT, but in the next three years we started to see requests for proposals (RFPs) from manufacturing companies, oil companies, and other customers. The education is done: Customers know now what the IoT is.

Everyone believes that the IoT is the next US$100bn market, but the biggest hurdle today is that the ecosystem is highly fragmented. Many companies with their own platforms also provide their own sensors, and none of the companies work together. There needs to be more collaboration, to create an ecosystem of software vendors, hardware vendors, and system integrators. This is a top priority and a major selling point for us at WebNMS; because we have that ecosystem with hardware vendors, the customer needs only to speak to one of us to acquire a full solution.

One surprising observation is that the IoT adoption is higher in the developing world, at least in enterprise. We see a lot more opportunities in the APAC region and Africa than in continental US or Europe. My personal observation is that this is because the level of automation in developing countries, even before the IoT, has historically been higher because it's more cost-effective. If you look at banking in India in the last five years, for example, the percentage of the population with access to bank accounts has increased from around 20

percent to 70 percent. This means that many more bank branches and ATMs are required, and adopting new technologies allows this with increased efficiency.

Question: Earlier this year WebNMS partnered with LP Technologies to offer a complete satellite network management solution. Can you provide us with further details on this development?
Prabhu Rakmachandran: For the telecommunications market, we have the Symphony brand, which has solutions to monitor satellite, broadband, and telecommunications networks. With the Symphony solution, telecommunications companies can unify their operations to lower their costs and simplify their service automation.

As part of our satellite network monitoring solution, Symphony Satellite Manager, we act as a multi-vendor monitoring system, covering both the IP and non-IP part of the network. For the satellite sector, we have partnered with equipment vendor LP Technologies, and we're selling their equipment to satellite service providers as part of our solution. When a satellite service provider opts for Symphony Satellite Manager, they can monitor their whole network, from base stations to transponders on the satellites, from a single centralised platform.

If you look at the satellite market today, there are specialised solutions for IP and non-IP solutions. We are very strong on the IP part, since we had been managing mobile networks across the globe for many years prior to the IoT. We bring that knowledge with us. Symphony Satellite Manager is the only solution of its kind.

Question: What are WebNMS' plans for the near future?
Prabhu Rakmachandran: For the foreseeable future, we're going to continue to focus on expanding our ecosystem. To this end, we're in discussions with a few more vendors, although we can't currently name any. With a more comprehensive ecosystem, we'll continue to offer market-leading IoT solutions to our customers. We're also in talks with certain satellite service providers that have taken an interest in our IoT solutions. These providers want to increase their connectivity, and we expect this to eventually increase the number of satellite connections. ∎