



Five virtualised data centres deliver cloud computing

Cisco network is the platform for iTricity's 'on demand' computing services in Holland

EXECUTIVE SUMMARY

Customer Name: iTricity
Industry: Data Centre Service Provider
Location: Netherlands
Staff: 50 employees

Business Challenges

- Combine five physically separate data centres into a single virtual network
- Greater speed and flexibility of provisioning tailored to specified customer needs
- Model virtual environments and services for customers on shared infrastructure

Network Solutions

- Cisco MPLS network, supporting secure virtualised services
- Cisco Application Control Engine for load-balancing and application delivery
- Cisco Catalyst 6500 Series Switches

Business Results

- Asset utilisation up 25 to 30 per cent, and operating costs down 30 to 35 per cent in three years
- Response time to customer service requests cut from two weeks to one day
- iTricity positioned for critical next step towards automated self-provisioning

Business Challenges

iTricity's ambitions as a provider of cloud computing services in Europe are summed up in its mantra – 'IT as electricity'. These words underline the dependence of 21st century business on IT to power its activities. At the same time, they stress the demand from business to meet fast-changing IT requirements, quickly and at lower cost, by applying a utility business model for the provisioning of computer-based services.

iTricity was born from its parent company, GlidePath, which monitors customer IT systems and business processes to ensure compliance. Originally the brand for GlidePath's data centre services, on 1 January 2008 iTricity was established as a separate company.

Robert Rosier, Chief Executive Officer, says: "Our vision was to create a computing cloud whose virtualised services meant that we would be able to meet customers' needs for services 'on demand.' To do this we needed to move away from traditional siloed infrastructures to create a very flexible and secure environment, where increasing levels of service automation will eventually see customers themselves initiate the services they need."

Rather than a range of discrete services, such as processor capacity, storage, or a Virtual Private Network, iTricity aimed to provide complete solutions encompassing server, storage and network capacity. The company's vision not only saw the creation of a shared infrastructure, where a tailored mix of services could be delivered to individual customers, but also

that this 'build once, share many times' model could be extended to provide regulatory-compliant computing clouds tailored to specific industry conditions.

By creating profiles detailing the configuration of resources and services required for specific market segments working to set rules, such as Sarbanes-Oxley or Basel II, iTricity would take away from companies, both large and small, the burden of developing their own compliant IT infrastructures.

Network Solutions

In June 2008, iTricity opened its new cloud computing hosting centre providing services for Belgium, the Netherlands, and Luxemburg with key technologies from Cisco and IBM.

The cloud is spread across five data centres. Three of the sites formed the core of GlidePath's original data centre resources and two were added later. These five data centres are connected together via a Cisco® Coarse Wavelength-Division Multiplexing (CWDM) solution over dark fibers using Cisco CWDM Multiplexers and Cisco CWDM Gigabit Interface Converters (GBIC)/Small Form-Factor Pluggables (SFP).

Three-step strategy

iTricity and Cisco share the same three-step strategy for the evolution of the data centre, a journey from consolidation, through virtualisation, to automation. Networking the three data centres together marked iTricity's consolidation phase, which enabled it to better share resources, reduce complexity, simplify management tasks, and lower its operating costs.

Stefan Baltus, iTricity's Senior Systems Architect, says: "The old CWDM/Layer 2 network helped us to create a consolidated platform, but while it enabled us to share resources it had limitations. For example, while it was possible to create virtual private local area networks (VLANs), this had to be done manually and it was virtually impossible to scale to support the multi-tenant, services-on-demand environment that we wanted to create."

The company saw that customers generate peak bursts of traffic at different times, so it made sense to create a virtualised pool of network capacity, with firewall and load-balancer licenses, along with virtualised server and storage capacity. The inherent overcapacity could then be shared among multiple users, leading to a marked improvement in resource utilisation.

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—Robert Rosier, Chief Executive Officer, iTricity

Virtualisation

In late 2007 iTricity entered its virtualisation phase, using IBM's Blue Cloud technologies for its compute and storage resources, and Cisco to create and virtualise the underlying network platform. Rosier explains: "There are other examples of cloud computing in the world, but they tend to be delivered from a single data centre. However, the flexibility, scalability and resilience we needed could only be achieved through multiple data centres – and for that, we needed Cisco technologies."

To realise its vision, iTricity built two 'second generation' data centres (the first a primary and the second for resilience), connecting them via CWDM to the other three centres, but also linking the two new sites directly via a Cisco MultiProtocol Label Switching (MPLS) network built from Cisco Catalyst 6500 Series Switches.

Offering a high degree of flexibility in resource allocation, and touching all parts of the data centre infrastructure, the Cisco MPLS network was combined with a Cisco ACE Application Control Engine Module and Cisco's Virtual Switching System within the Catalyst 6500 chassis. iTricity is one of the first companies to combine Virtual Switching System (VSS), MPLS and Service modules in the Cisco Catalyst 6500 Series Switches in two chassis to provide unmatched availability. This virtualised architecture helped simplify management, increase application availability, accelerate application and server performance, reduce data centre power, space, and cooling needs, thereby lowering operational costs.

“Imagine the network as a series of horizontal layers... Virtualisation means that we can share all of these resources and give each customer their own vertical slice, configured to meet their needs.”

–Stefan Baltus, Senior Systems Architect, iTricity

The network has become the platform able to support a range of functions including routing, switching, the separation of customer networks and also load balancing, security and firewalls. Baltus says: “Imagine the network as a series of horizontal layers, starting with the optical transport through to, eventually, a customer self-service provisional layer. Virtualisation means that we can share all of these resources and give each customer their own vertical slice, configured to meet their needs.”

Business Results

Better use of assets

Asset utilisation rates at iTricity have improved by 25 to 30 per cent through consolidation and virtualisation, yielding significant cost savings on power, cooling and physical space at its five data centres. For example, each ACE module is able to support 250 virtual firewalls, effectively reducing around six racks of equipment into a Catalyst 6500 chassis.

iTricity estimates that power savings on firewalls are around 90 per cent and overall there has been a 60 per cent reduction in power consumption. This means big financial savings as well as a significant contribution to the environmental performance of any business making heavy use of power-hungry data centres. Overall, operating costs have been reduced by 30 to 35 per cent.

Faster response to customer need

The time needed by iTricity to respond to customer service requests has been greatly reduced, from an average of two weeks to just one day. Along with the flexibility to provide server and storage capacity from several locations, virtualised over a single network, iTricity can now offer extended VLANs to customer premises because MPLS technology allows the company to extend its services to other points of presence. Using dark fibre to customer premises, customer equipment is brought into the cloud and provisioned from iTricity servers, enabling customers to draw on extra capacity as and when needed.

‘Pay for what you use’ business model

iTricity offers capacity on demand, managed or unmanaged, with a customer portal to give a clear, graphical overview of cloud computing resources deployed. This is coupled with a straightforward billing system that lets customers know exactly what they are spending and gives them the assurance of paying only for what they use. In an economic downturn this ‘pay for what you use’ business model has been particularly attractive to customers eager to avoid capital investments.

Supporting customer need for compliance

The solution has reduced the time and cost to compliance for iTricity customers. Rosier says: “A lot of companies do not have a couple of hundred thousand Euros that might be needed to make their IT organisation compliant. However, we do it once and can share that same model with other customers. A lot of people do not know how to translate business rules into an IT environment and this is a major benefit to many of our customers.”

Investment model aligned to growth

Standardising on a Cisco platform has also enabled iTricity to better manage its growth and investment, using the concept of key milestones to signal the need for further growth. Conceiving the infrastructure as a combination of building blocks delivering sets of functionality not only helps iTricity determine pricing; it also defines the investment needed to ensure infrastructure growth is in line with customer demand. The use of finance from Cisco Capital helps ensure that IT investment is closely aligned with revenue. Overall, iTricity achieves a return on investment of 1.5 years.

Next Steps

Even though iTricity has created a computing cloud able to support some 1000 servers, customer demand means it is already planning to further scale its resources. Upgrading from the current 8 x 1Gbps backbone to 8 x 10 Gbps will protect its investment in its Cisco optical network. This will be achieved with a cost-effective upgrade to Cisco Enhanced Wavelength-Division Multiplexing (EWDM) technology and via a module upgrade within its Catalyst 6500s. iTricity is also exploring the use of Unified Fabric as a means of removing complexity and cabling costs from its data centre environment. The company will also be moving forward with its ambitious plans to automate its operations further by empowering customers with greater levels of self-service provisioning.

PRODUCT LIST

Routing and Switching

- Cisco Catalyst (VSS) 6500E Series Switches (MPLS Core)
- Cisco 4500 Series Switches
- Cisco 3750 Series Switches
- Cisco Catalyst 2960G Series Switches
- Cisco 2800 Series Routers

Transmission

- Cisco CWDM Optical Add/Drop Multiplexers (OADM).
- Cisco CWDM Gigabit Interface Converters (GBIC)/Small Form-Factor Pluggables (SFP)

Loadbalancing

- Cisco CSS loadbalancers
- Cisco ACE Application Control Engine Module (in Catalyst 6504E)

Security and VPN

- Cisco ASA5510, ASA5520 & ASA5550 Security Appliances



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