CISCO

Inovalon pushes healthcare value with Vscale Architecture

Size: 2000 employees | Industry: Technology, Healthcare Analytics
Location: Bowie, Maryland, USA

Challenges

- Quickly modernize and scale private cloud capacity to its data centers to capture a growing market

- Deploy cloud-based client products and services faster

- Deliver isolated, secure, and HIPPA-compliant instances for each client's health-related data

- Simplify IT so staff can focus less on infrastructure management and more on product innovation for its clients

Solutions

- A pre-engineered, converged infrastructure based on Dell EMC Vscale Architecture

- Software-defined, policy-driven automation using Cisco® UCS® Director and Cisco Application Centric Infrastructure (Cisco ACI™) technology

- Distributed database and data lake

Results

- Deployed capacity to support three modern data centers in half the time versus a build-your-own solution

- Reduced time to deploy secure, cloud-based client environments by 50 percent

- Tripled infrastructure without expanding IT staff

- Simplified IT management so staff can focus on business growth and service innovation

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Inovalon is a leading technology company empowering a data-driven transformation from volume-based to value-based models throughout the healthcare industry. To do this, it takes full advantage of its large-scale data interconnectivity capabilities, superior proprietary data sets, advanced analytics, data-driven intervention systems, and industry-leading subject matter expertise. Inovalon helps to enable the assessment and improvement of clinical and quality outcomes and financial performance across the healthcare ecosystem.

Challenge: Help the healthcare industry transition from volume to value

The healthcare industry is in a state of transition, using big data analytics to advance new, value-based paradigms. Data helps identify gaps in care, quality, documentation, and assessment—producing insights that lead to better decisions, outcomes, and economics.

And Inovalon is at the center of it all. The cloud-based analytics service provider is using big data to help the entire healthcare ecosystem transition from volume to value.

Inovalon helps to enable the aggregation of the necessary data and facilitates the advanced analytics to discern what is relevant and what it all means. It uncovers insights that make an impact.

Security. Speed. Scalability. Inovalon needs them all.

"Inovalon implemented Vscale to decrease cycle times dedicated to provisioning resources for our sophisticated private cloud offerings—most importantly, our Inovalon ONE platform. With this competitive advantage, Inovalon ONE delivers a highly scalable, flexible platform-as-a-service capability—unrivaled in the industry today—to enable value-based care across the healthcare ecosystem."

Faisal Khalid
Senior Vice President of Technology Solutions, Inovalon

For More Information

- For more information on Vscale Architecture, visit: dellemc.com/vscale

- For more information on converged infrastructure, visit: cisco.com/go/vblock

- For more information on Cisco ACI policy-driven automation, visit: cisco.com/go/aci

With Vscale Architecture, Inovalon

- Speeds up client onboarding and time to results

- Scales out its data processing volume, speed, isolation, and security

- Facilitates business growth and improves time to revenue
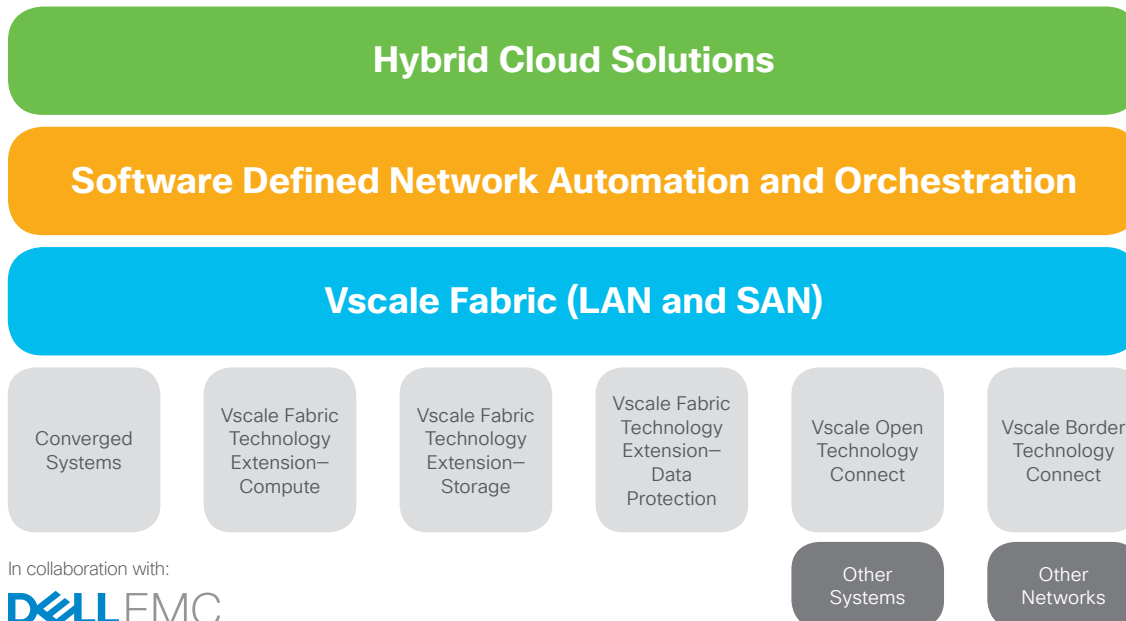
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Addressing massive demand

With increasing demand for its services, Inovalon didn't have the time or appetite to stitch together and scale a complex mix of infrastructure components from multiple vendors. The company's IT staff wanted to adopt new, modern, and scalable technologies to support distributed compute models, a rapidly expanding data lake, visualization tools, and other components—without creating bottlenecks.

"We had settled on specific new technologies, but creating and maintaining an optimized environment around them concerned us," says Faisal Khalid, senior vice president of Technology Solutions at Inovalon. "For example, our distributed database technology is very network sensitive, and we need to build clusters for certain clients that have 90-plus or 100-plus nodes each. We wanted the ability to scale those clusters across racks to achieve linear performance scaling, which often leads to latency."

Inovalon turned to Vscale Architecture, which extends the benefits of a single Dell EMC Vblock or VxBlock converged infrastructure system to the entire data center. A block consists of Cisco® compute and network and Dell EMC storage and data protection technologies. These are engineered and manufactured as one product in a common cabinet to simplify ongoing IT operations. Vscale Architecture, however, delivers these technologies in separate cabinets and brings them together through a common network fabric, software-defined automation, and centralized management. This simplifies IT while allowing greater scalability and flexibility than a single block. It makes it possible for all technologies to be scaled and refreshed independently.

Figure 1: The Vscale Architecture

| Hybrid Cloud Solutions |
| Software Defined Network Automation and Orchestration |
| Vscale Fabric (LAN and SAN) |

| Converged Systems | Vscale Fabric Technology Extension– Compute | Vscale Fabric Technology Extension– Storage | Vscale Fabric Technology Extension– Data Protection | Vscale Open Technology Connect | Vscale Border Technology Connect |

| Other Systems | Other Networks |

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Vscale Architecture at Inovalon

Dell EMC Vscale Fabric
- Cisco Nexus® 9000 Series spine and leaf LAN switches
- Cisco MDS core and edge SAN switches

Dell EMC Vblock System 340
- Intel® Xeon® processor-based Cisco UCS, Cisco Nexus, and Cisco MDS; Dell EMC VNX storage

Dell EMC Vscale Fabric Technology Extensions
- Cisco UCS blades and rack-mount servers
- Dell EMC Unity and Isilon storage
- Dell EMC Avamar, Data Domain, and VPLEX data protection

Dell EMC Big Data software

Cisco UCS management software

Cisco UCS Director software for automation and orchestration

Cisco ACI software-defined networking

Cisco Application Policy Infrastructure Controller (APIC) for Cisco ACI

Dell EMC Vision Intelligent Operations monitoring software

Vscale Services Provided to Inovalon

Dell EMC and Cisco Vscale Deployment, Installation, and Support Services

Dell EMC and Cisco Release Certification Matrix Implementation Services

Dell EMC and Cisco Expansion and Optimization Services

Speed through automation, application profiles

In the past, Inovalon's client onboarding process was not an abbreviated one. New clusters had to be built piece by piece and then integrated with the company's analytics engine and data lake. Data segmentation, security, and compliance had to be painstakingly configured. With Vscale Architecture—and the automation provided by Cisco UCS® Director and Cisco Application Centric Infrastructure (Cisco ACI™)—onboarding a new client now takes half the time it did before.

"Infrastructure is always the slowest to deploy, the culprit of delays," Khalid says. "But with automation built into Vscale, time to deploy new hardware has been cut in half. And better data isolation has supported the ongoing evolution of our security posture."

Inovalon is using Cisco ACI to create profiles and policies for its big data solutions, automating the configuration of firewalls, load balancers, and security appliances. These profiles and policies are easily replicated when new clusters are deployed and easily adjusted when client needs or services change.

The profiles also helped Inovalon build a second data center to accommodate ongoing business growth and continuity. Using Cisco ACI, the company was able to copy its initial Vscale Architecture deployment in Reston, Virginia, to expedite the deployment of a new data center in Phoenix, Arizona. The confidence in and speed of the deployment—two months total—helped Inovalon realize faster time to revenue.

"We took advantage of the application profiles that were created for the big data solutions in our Reston data center and used them to automate the deployment of our Phoenix data center," Khalid explains. "We also added dozens of new corporate application services, and we did it all in the same amount of time and with the same number of people that were involved in the rollout at Reston."

The data centers weren't just fast to deploy. They were also easy to expand and manage.

"We quickly refreshed our data center technology and tripled our capacity, including more than 50 new racks, without having to add engineering or operations staff," Khalid notes. "And we can expand capacity for our clients on demand through a pay-as-you-grow arrangement with Dell EMC."

Single infrastructure, single support
According to Khalid, the benefits of an integrated super-system are complemented by integrated support from Dell EMC and Cisco.

With single-call support from Dell EMC, Inovalon never has to chase vendors. And the close, ongoing partnership between Dell EMC and Cisco means Inovalon's Vscale Architecture will be fully supported well into the future. This includes Dell EMC's Release Certification Matrix, a quality assurance process. It tests the compatibility between existing—and forthcoming—compute nodes, storage arrays, networking elements, and hypervisor software, including all release upgrades and patches.
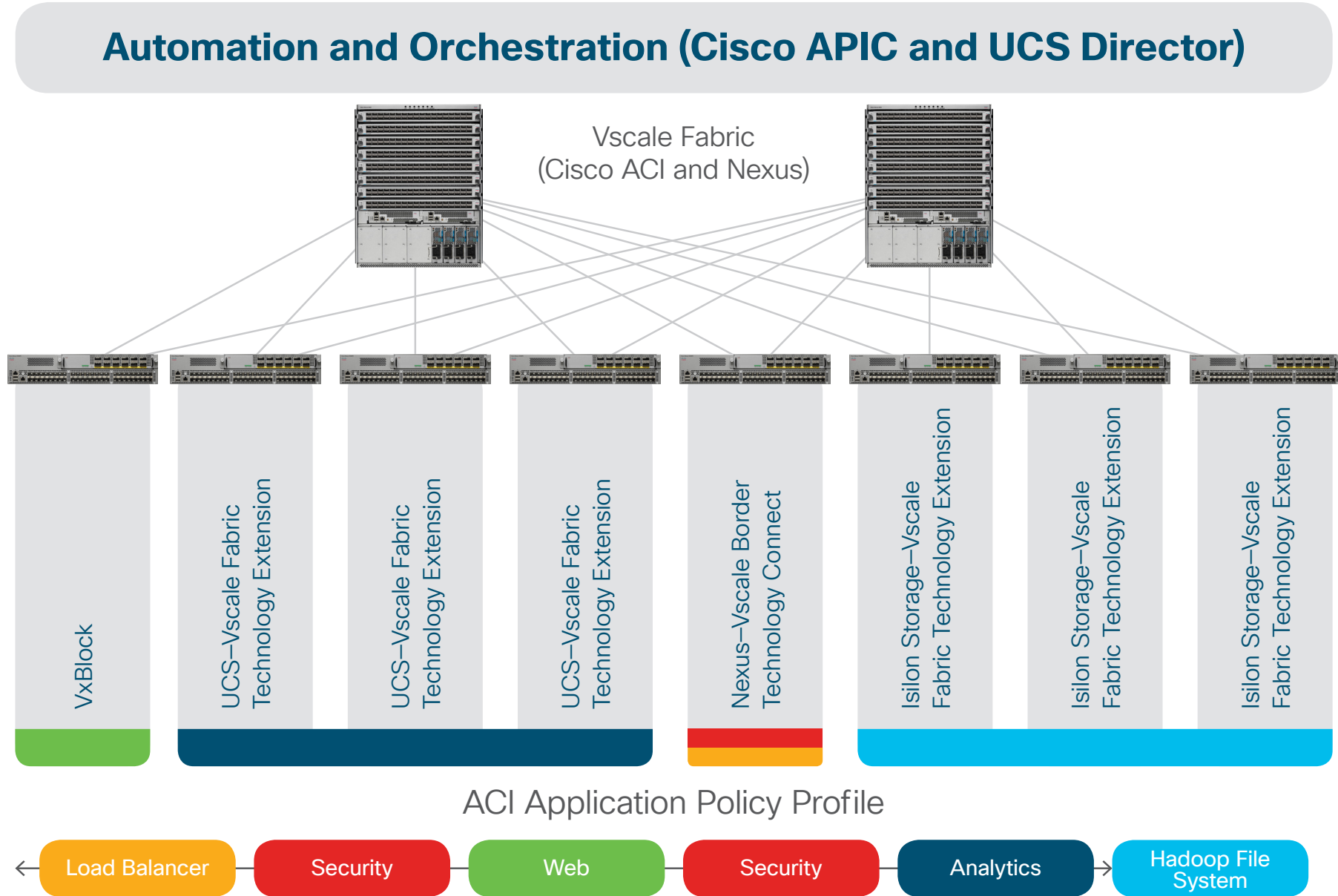
"We don't fit in most pre-packaged boxes. Our needs are unique," says Khalid. "Vscale gave us a pre-engineered system that was ready for us to lay our products and services on top of. And we can scale as much as needed without losing any of the security or management efficiencies."

In other words, it offers all the benefits of a converged system in a box, but with heterogeneous extensions and almost limitless horizontal expansion.

Figure 2: Automation provided by Cisco ACI

Automation and Orchestration (Cisco APIC and UCS Director)

Vscale Fabric
(Cisco ACI and Nexus)

VxBlock

UCS–Vscale Fabric
Technology Extension

UCS–Vscale Fabric
Technology Extension

UCS–Vscale Fabric
Technology Extension

Nexus–Vscale Border
Technology Connect

Isilon Storage–Vscale
Fabric Technology Extension

Isilon Storage–Vscale
Fabric Technology Extension

Isilon Storage–Vscale
Fabric Technology Extension

ACI Application Policy Profile

| Load Balancer | Security | Web | Security | Analytics | Hadoop File System |

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Looking ahead

With greater speed—of system and service deployments, client onboarding, and data-driven insights—Inovalon is helping its customers accelerate their own operations. The company will use its new technology foundations to advance its Inovalon ONE platform and fully automate application policies, data security, and application delivery. And it will push the boundaries of health-related data analytics and continue to empower the healthcare ecosystem's transition from volume to value.

"We are spending less time on systems integration and management, and more time on innovation. We're moving to a DevOps model of continuous improvement, and we're creating agility and value that can be passed along to our customers."

Faisal Khalid
Senior Vice President of Technology Solutions, Inovalon

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