**Construction Company Changes Data Center Economics**

# ARUP BUILT ITS NEW DATA CENTER WITH UNIFIED COMPUTING SYSTEM, REDUCING DEVICE COUNT AND INCREASING EFFICIENCY

## EXECUTIVE SUMMARY

### Arup
Construction, Worldwide offices and 7000 Employees

### Challenge
Reduce data center operating costs

Simplify management

Ensure application availability

### Solution
Consolidated servers, switches, and storage access from multiple data centers onto a single Cisco Unified Computing System

Engaged Creative ITC for planning and deployment

### Results
Reduced device count by 60 percent

Reduced power consumption by 38 percent

Increased VM utilisation per host server

# CHALLENGE

Arup is a leading civil and building construction company offering diversified general contracting and design/build services to private clients and public agencies throughout the world. Its services include general contracting, pre-construction planning, design, and comprehensive project management.

The company is recognised for its major complex building project commitments as well as its capacity to perform large and complex transportation and heavy civil construction. Through mergers and acquisitions, Arup had acquired a number of data centers. The company decided to build a brand-new data center to be shared by all entities.

Motives for consolidation included reducing operating costs, simplifying management, helping to ensure application availability, and expanding the vSphere application environment.
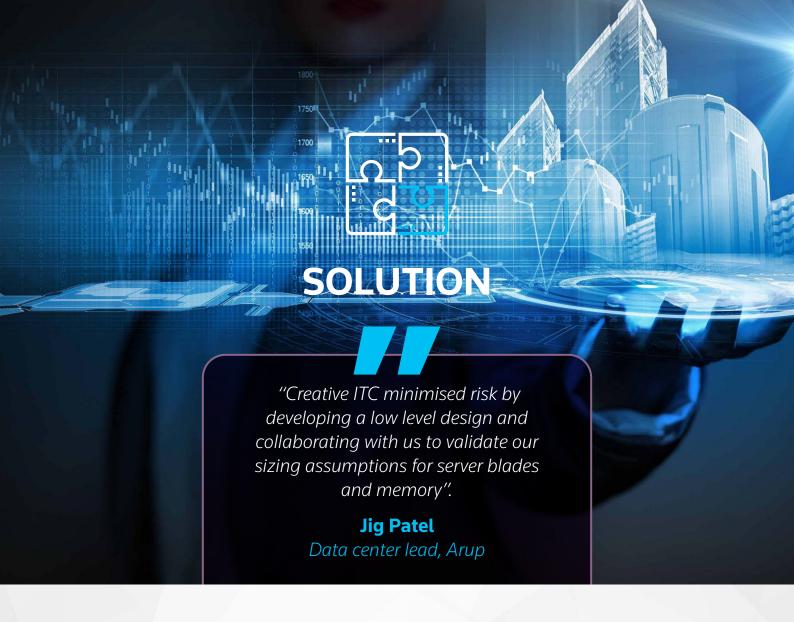
Creative ITC

# SOLUTION

> *"Creative ITC minimised risk by developing a low level design and collaborating with us to validate our sizing assumptions for server blades and memory".*

**Jig Patel**
*Data center lead, Arup*

After evaluating a number of leading platforms, Arup selected the Cisco® Unified Computing System (UCS), which unifies network, servers, storage access, and virtualization into a single, cohesive system**. "When we did a side-by-side comparison, every person on our technical team agreed that the Cisco solution best met our business needs," said Jig Patel, data centre lead, Arup.** Unique advantages of the Cisco UCS included built-in support for VMware and the fact that Cisco was already a trusted vendor for all of Arup's business divisions.

Arup configured and ordered six chassis, 40 server blades, and two four Cisco 6248 Fabric Interconnects across two sites. The main production site was in a newly commissioned DC in North London with a DR site located at their Midlands campus. The system currently connects to 30 terabytes of data in an Ethernet NFS environment.

The Cisco UCS can still be managed as a single entity when configured with up to 40 chassis. To size it correctly, Arups IT department added up the compute requirements for all of its member companies and then added another 30 percent to account for expected growth over three years. **"Working with Creative ITC gave us the confidence that we could implement a new technology and meet our strict deadline."**

Arup have already moved almost all of their current VM workloads from their London HQ to the new data center, using VMware products to transfer servers, virtual machines, and data over the network. **"The deployment was very smooth, which is unusual for a brand-new technology," says Jig. "Creative ITC worked side-by-side with us to deploy the Cisco UCS and was instrumental in our success. They also made sure that the Cisco UCS operated well with our network infrastructure and storage."**

# RESULTS

**Ongoing Cost Savings**

Arup compared the five-year costs of purchasing and operating a Cisco UCS to upgrading its existing systems, calculating that the investment will pay for itself in 36 months. Factors contributing to lower costs include:

✔ **Equipment consolidation**
In data centers, less is more, and the Cisco UCS requires less cabling, less power, less cooling and, most important, less overhead. Arup is consolidating from large number of physical servers and network devices to six Cisco UCS chassis with integrated switching and management, reducing its hardware footprint by 60 percent.

✔ **Increased server utilisation**
With Cisco UCS, we anticipate being able to deploy four times as many virtual machines per VMware ESX host as we did previously, and to achieve 90 percent CPU utilisation.

✔ **Simplified cable management**
The Cisco UCS has only four cables. Cable management was an ongoing challenge in the previous environment. With its integrated network and storage access, Cisco UCS required the fewest cables to purchase and manage of any platform we evaluated, Jig Patel says. Having fewer cables also improves airflow, which reduces power and cooling costs.

✔ **Lower energy consumption**
The Cisco UCS uses 38 percent less power than Arup's previous equipment, which the company says will result in significant ongoing savings.

**Creative ITC**

# SIMPLIFIED MANAGEMENT

Using Cisco UCS Manager service profiles, the IT department provisioned 20 new VMware ESX hosts and their I/O properties in just three hours. Ongoing management is simpler as well, because IT staff can manage the Cisco UCS chassis, blades, and Cisco 6248 Fabric Interconnects from one interface.

"It saves me time to use the same interface for tasks ranging from creating virtual machines to investigating if a processor overheats," **says Arup.**

# HIGH AVAILABILITY

The redundancy built into the Cisco UCS helps to ensure that critical business applications and a customer web portal remains available. That's important in the construction industry, where teams working to finalise a bid before a deadline can't afford for a server or network link to be down. Arup employees have experienced uninterrupted application access since the system was deployed. In the event of a future failure, automatic fail-over will help ensure that users can continue working while the IT department works to fix the issue.

To learn more about Creative ITC and the solutions featured in this case study, visit **www.creative-itc.com**