

## CASE STUDY

# DX UIM Enables Broadcom to Scale, Optimize Infrastructure Monitoring

## Broadcom

### COMPANY PROFILE

Site: [www.broadcom.com](http://www.broadcom.com)

Industry: Semiconductor and Infrastructure Software

Headquarters: San Jose, CA

Employees: 20,000

### CHALLENGES

- Supporting large-scale, complex IT environments that span across hundreds of sites.
- Maximizing the resilience and performance of environments that support more than 40 business-critical SaaS solutions.
- Contending with the cost and complexity of managing more than 100 tools.

### BROADCOM SOLUTIONS

- DX Unified Infrastructure Management

### BENEFITS

- Realized a 97% reduction in alarm noise.
- Achieved the ability to scale to support 15.3 million messages per hour.

## Business

Broadcom is a global infrastructure technology leader with a track record of 50 years of innovation, collaboration, and engineering excellence. The company's roots are based in the rich technical heritage of AT&T/Bell Labs, Lucent, and Hewlett-Packard/Agilent. Through the combination of industry leaders like Broadcom, LSI, Brocade, CA Technologies, and Symantec, the company has the size, scope, and engineering talent to lead the industry into the future.

The company delivers category-leading semiconductor and infrastructure software solutions, so its customers can navigate constant change, and build successful, growing businesses. By combining global scale, engineering depth, broad product portfolio diversity, superior execution, and operational focus, the company has established global leadership in numerous product segments.

## Challenges

### Managing a Complex, Large-Scale Environment

Like many IT organizations in large enterprises, Broadcom's global technology organization (GTO) is responsible for monitoring and maintaining large-scale, complex environments. For the GTO specifically, this means supporting more than 18 data centers, 100 sites, 400 R&D labs, and tens of thousands of diverse systems.

However, unlike many other enterprises, the team at Broadcom also has to support the hosting and delivery of a range of SaaS solutions, more than 40 solutions in all. Customers rely upon these solutions constantly for critical capabilities, including monitoring, application testing, and business management. Consequently, a lot is riding on the GTO's ability to ensure these services provide maximum availability, integrity, and security.

### Prior Toolsets Intensify Challenges

In prior years, the team had been relying on a complex mix of tools to gain the monitoring coverage required. In fact, at one point they were running more than 100 tools, with many different instances deployed across teams. This left the team burdened by high costs and inefficiency.

The team adopted DX Unified Infrastructure Management (DX UIM) to establish comprehensive, cohesive monitoring of its server and storage infrastructure



In spite of all the tools employed, teams were still limited in terms of the infrastructure elements that could be monitored. For example, there were approximately 50,000 virtual machines that had no monitoring visibility. Also, for many hosts, they were restricted to basic up/down monitoring.

In addition, the team was struggling with the volume of alarms that were being generated, which were often inaccurate or redundant. This made it very difficult for operators to sift through all the alarm noise and determine which were the significant issues that needed to be addressed most urgently.

Further, the toolsets were labor-intensive. Given the scale of the environment, the team commonly adds hundreds of new systems every couple of days. Their prior solutions required a lot of manual effort to configure and deploy monitoring capabilities as new systems were brought online. In addition, to gather the metrics required, the team had to develop a number of custom scripts, which added to the effort and complexity.

Finally, the lack of coverage and the requirements for custom scripts left the team with no efficient way to establish a unified view of all the data centers and domains that had to be supported, which made it difficult to manage these different environments in a standard, efficient manner. The team was left reacting to issues, and it was taking too long for multiple teams to coordinate and triage incidents, lengthening resolution times.

Given all these challenges, it was presenting an increasing strain on the team to ensure they could scale monitoring to keep pace with the organization's growing, dynamic environment.

## Solution

### Introduction: Leveraging a Suite of Broadcom Solutions

The team adopted DX Unified Infrastructure Management (DX UIM) to establish comprehensive, cohesive monitoring of its server and storage infrastructure. In addition, over time, the team has employed these additional Broadcom solutions:

- **DX Operational Intelligence (DX OI).** DX OI is an AIOps platform that employs AI and machine learning to normalize, correlate, and analyze operational data from a range of solutions. Multiple monitoring platforms, including DX UIM, feed intelligence to DX OI. DX OI applies extensive analysis to the data collected and also sends enriched alarms to the team's ticketing platform.
- **DX NetOps.** DX NetOps provides unified, scalable capabilities for monitoring Broadcom's traditional, SDN, and cloud networks.
- **DX Application Performance Management (DX APM).** Today, the team uses DX APM to discover and diagnose application performance issues.
- **DX App Synthetic Monitor (DX ASM).** The team uses this powerful synthetic monitoring solution to gain an end-user's perspective on application performance.
- **Automic Automation.** Automic offers a unified platform that enables the Broadcom team to centrally manage orchestration and automation.

**From day one, DX UIM offered comprehensive, out-of-the-box coverage of all the server and storage technologies that had been deployed. As a result, the team could establish the monitoring required with standard APIs, rather than having to create a number of custom scripts.**



## DX UIM Key Features

### Dynamic Discovery

DX UIM offers a number of capabilities that help streamline device discovery and ensure monitoring coverage stays current. With the solution, teams can do discovery based on imports from their configuration management database (CMDB). The solution can also ingest correlated intelligence from the CMDB, including groups, profiles, and so on. With this rich intelligence, DX UIM helps teams do faster, more effective troubleshooting.

### Efficient, Zero-Touch Configuration

Administrators use DX UIM's Monitoring Configuration Service (MCS) for establishing monitoring policies and doing bulk configuration. With MCS, teams have established monitoring profiles for specific types of technologies, enabling streamlined, centralized definition and management of monitoring policies.

### Unified, Comprehensive Visibility

From day one, DX UIM offered comprehensive, out-of-the-box coverage of all the server and storage technologies that had been deployed. As a result, the team could establish the monitoring required with standard APIs, rather than having to create a number of custom scripts.

With DX UIM, the team can manage a wide range of technologies, including the following:

- Nutanix clusters, hosts, and controller VMs
- VMware vCenters, ESXi hosts, and VMs
- Physical servers (primarily Dell PowerEdge)
- Operating systems:
  - Linux (CentOS, RedHat, and Ubuntu), from version 2.6 to 5.4
  - Windows Server 2008, 2012, 2016, 2019
  - Windows Storage Server 2012
  - Solaris 5.10
  - AIX
  - AS400
- Pure storage
- Dell EMC Isilon clusters and Remote Access Controllers (iDRAC)

### Flexible, High-Performance Architecture

Rather than being limited to group-specific deployments, DX UIM enables the team to implement in a standard, organization-wide fashion, while giving teams visibility that's aligned with their specific roles and organizations. The solution's robust hub architecture gives teams the flexibility to organize by functional and regional areas, while also ensuring high performance and availability.

Since deploying DX UIM, the team has been able to realize a 97% reduction in alarm noise.



### Native Multi-Tenancy

While working within a single company, a number of divisions run as separate business units within Broadcom. With the prior solution, the GTO team had to use several different deployment instances and develop many custom scripts in order to accommodate the needs of these different groups. By contrast, DX UIM offers native multi-tenancy support, which provides a number of advantages. The solution enables the team to centralize deployment and administration, while ensuring data is only accessible by authorized teams.

### Results

By implementing DX UIM, the Broadcom GTO team has been able to realize several key benefits:

- **Improved service levels and faster response.** Since deploying DX UIM, the team has been able to realize a 97% reduction in alarm noise. Not only have teams eliminated the wasted time and effort of chasing false or redundant alarms, but they get better insights that fuel better prioritization of remediation efforts and faster, more efficient response when issues arise.
- **Efficiency and time savings.** With the solution's comprehensive, out-of-the-box support for a diverse range of technologies, the team can establish the monitoring coverage it needs, without having to develop a lot of custom scripts. This saves the team time up front, and over time, because they don't have to manage and maintain these scripts indefinitely. In addition, they've been able to establish standard, centralized monitoring governance that promotes best practices and improved productivity and efficiency. By leveraging a central platform and management interface, the GTO team has been able to support increased environment growth. The team can now support 18 global data centers, without having to make significant additions in head count.
- **Scalability.** By harnessing the solution's comprehensive technology support and efficient operation, the team was able to significantly scale its monitoring coverage. Over the course of a few months, the solution may now ingest more than 200,000 alerts, which are fed into DX OI for noise reduction and incident management. One group within the GTO, the research and development team, is now collecting a total of 25 metrics for approximately 20,000 managed services, amounting to 4,250 messages per second or 15.3 million messages per hour.

For more information, visit the [DX UIM solution page](#).

#### About Broadcom Software

Broadcom Software is a world leader in business-critical software that modernizes, optimizes, and protects the world's most complex hybrid environments. With its engineering-centered culture, Broadcom Software has an extensive portfolio of industry-leading infrastructure and security software, including AIOps, Cybersecurity, Value Stream Management, DevOps, Mainframe, and Payment Security. Our software portfolio enables scalability, agility, and security for the largest global companies in the world.

For more information, visit our website at: [software.broadcom.com](https://software.broadcom.com)