

**Company:**

US Telecom Company

Midwest-based service provider  
providing services nationwide

**Key Issues:**

The company needed to  
validate its virtual multimedia  
migration.

- Transitioning from physical network/service to cloud/virtual based delivery
- Maintaining/improving customer QoE in a virtual environment
- Costly lab setup

**Solutions:** IxLoad

**Results:**

- Achieved 3-5x cost savings on production scale lab setup
- Improved service delivery and rollouts
- Sped up time to revenue, with a \$10M impact

## SERVICE PROVIDER AUTOMATES VIRTUAL TESTING FOR FASTER MIGRATION TO vIMS

Networks—and their associated functions—are undergoing constant change these days. Regardless of which side of the network you are on, as a provider or as a subscriber, tolerance for poor performance is next to zero. For service providers, that can pose quite a challenge, especially when it comes to ensuring quality of experience (QoE) and keeping costs in check. When a tier-two telecommunications company in the Midwest decided to implement a virtual IP multimedia subsystem (vIMS) network, it needed to make sure it would deliver—on a user experience for customers that met or surpassed the quality prior to the virtual migration. To do so, comprehensive resource utilization and virtual infrastructure capacity planning tests were required.

As a provider of high-speed Internet and mobile services, this business wanted to improve voice over Long-Term Evolution (VoLTE) services, as well as high-definition video calls. At the same time, it wanted to reduce costs associated with validating

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— Test Engineer

and delivering services. “We conducted a study with our subscribers to gauge how well we were doing with the quality of our delivery,” explained a test engineer from the service provider business. “Over and over, the top concerns expressed were voice latency and the quality of voice over LTE calls.”

The service provider was operating on a 4G core infrastructure with dedicated hardware from various vendors. Each time there was a new service rollout or upgrade, it was a costly endeavor—in terms of time and money. To achieve its objectives of improving quality and reducing costs—along with creating a greater sense of agility—it virtualized its IMS core.

Since the service provider was already using Ixia hardware tools for its hardware testing, it naturally turned to Ixia®, a company known for making applications stronger, to test the move to virtualization. Using IxLoad® VE, the provider extended its continuous integration and continuous deployment (CI/CD) pipeline testing from lab to production.

The vision: to move everything done in the physical lab to a pre-deployment lab on the production network. The business had initially invested in IxLoad and was able to test applications with full realism and scale. Now with the shift to a vIMS, it ran those same Layer 4-7 application tests using IxLoad VE—accelerating the timeline from lab to production.

Using Ixia’s virtual test tools, the service provider created unique test configurations to stress various elements of the vIMS. Each virtual network function (VNF) underwent comprehensive performance and pre-production smoke tests. The test team focused on voice and video QoE for subscribers and overall network performance at full scale. More sophisticated tests involving multiple VNFs and their interactions in service function chaining were carried out to ensure highest quality of experience throughout the service delivery path. The team also performed detailed CPU and memory resource utilization tests to better plan optimal capacity.

In the process, the service provider replicated a test as one subscriber, to evaluate the quality of voice, video, and other content, as well as the general quality of experience. Next, it replicated actual volume and scale of subscriber activity by testing how the network performed with 10,000 simultaneous subscriber calls and other typical transactions. “Realistic testing, emulating true subscriber behavior with real VoLTE calls, provided



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the certainty we needed,” noted the test engineer. Not only were applications working from a turn-on/functional standpoint on the vIMS network, they were also performing to high-quality standards.

By improving capacity planning and utilization of compute resources across three data centers, the service provider saved \$5 million in just 18 months in associated infrastructure costs. And, because the provider optimized the configuration of its vIMS network elements and VNFs—along with its ability to test service function chaining—it reduced voice latency by 20 percent and improved QoE. Plus, by integrating Ixia virtual test tools into the CI/CD pipeline, the time required to identify issues and resolve them lowered dramatically. This shortened the sprint from lab to production—amounting to a \$10 million impact on top line revenue as a result of being able to monetize new services three months earlier.

IxLoad helped the service provider find issues faster and resolve them more quickly. It also helped make the provider’s applications stronger. As a result, it was able to easily and quickly validate new vIMS releases across all service regions.

As the network architect noted, the new, virtualized setup was not just about portability and elasticity. It was about totally changing their way of testing and bringing more confidence.

### ABOUT IXIA

Ixia provides testing, visibility, and security solutions, strengthening physical and virtual network elements for enterprises, governments, service providers, and network equipment manufacturers.

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