

High-Availability Architecture Helps Global Telecommunications Provider Dramatically Enhance Call Center Service and Performance

Director-Based Solution Boosts Agility, Availability, and Troubleshooting Efficiency

Director Pro



Industry:

Telco

Objective:

Create a high-availability call-monitoring architecture to maintain call integrity and completeness for later analysis. Streamline ability to monitor traffic from primary and backup routers in order to meet SLA and legal compliance requirements.

Approach:

Use Director Pro as the foundation of a fault-tolerant access solution that forwards both SIP and RTP traffic to VoIP recorders with even distribution among them.

Technology Improvements:

- High-availability architecture streamlines traffic-handling from primary and backup routers
- Solution responds instantly to fluctuations in traffic levels
- Calls are distributed evenly to prevent oversubscription
- Sniffers easily access traffic for trouble-shooting
- Link-state awareness enables instant traffic redistribution if a link is dropped

Project Outcomes:

- Improved ability to monitor complete calls
- Consistent traffic flow amid high and changing demand
- Enhanced flexibility and responsiveness
- High availability minimizes lost calls



For this global Telco—as for many enterprises—the call center is a unique, vital conduit to the mind and heart of the customer. No other division has the capability to deliver a real-time, 24/7 “finger on the pulse” flow of high-value information to help the company listen and respond to user issues. A call center is the first line of communication and an unparalleled opportunity both to resolve issues and to market new services, promotions, and upgrades. Businesses are literally made and lost on call center performance—and this Telco is keenly aware of the critical nature of its resource.

“Our customers have really noticed our new speed and accuracy. Thanks to Net Optics Director Pro, we’re able to monitor our call volume more reliably and effectively than ever before.”

— Telco Network Manager

The Telco maintains multiple primary call centers wherein twenty thousand agents process more than half a million calls each day related to account service, billing, and technical support issues. The Telco is tasked with monitoring these calls for reasons that include security, staff performance, and any other matters they wish to gauge.

“Your Call May Be Monitored”

“We named our call center ‘Mission Control’ because this is where we prove our commitment to our mission of delivering exceptional customer service,” says the Telco’s IT director. “We can spot trends or problems within minutes, mine new business, and seize competitive opportunities.”

One monitoring activity is recording calls for later analysis. Everyone has heard the familiar reminder: “Your call may be monitored for quality purposes.” In this instance, it’s not necessary for the Telco to record every single call; if a call is dropped now and then, it’s not a problem. However, it’s essential to keep all monitored calls intact and confined to a single recording device for accurate evaluation.

To preserve the integrity of specific calls, the Telco uses a large number of VoIP recorders, each of which can handle 300 calls at a time. For this, the Telco needs an access solution that can swiftly, precisely direct both Session Initiation Protocol (SIP) and Real-Time Protocol (RTP)—the actual sound stream—to VoIP recorders and distribute them evenly.

How It Works: Monitoring the Flow of Calls Into the Call Center

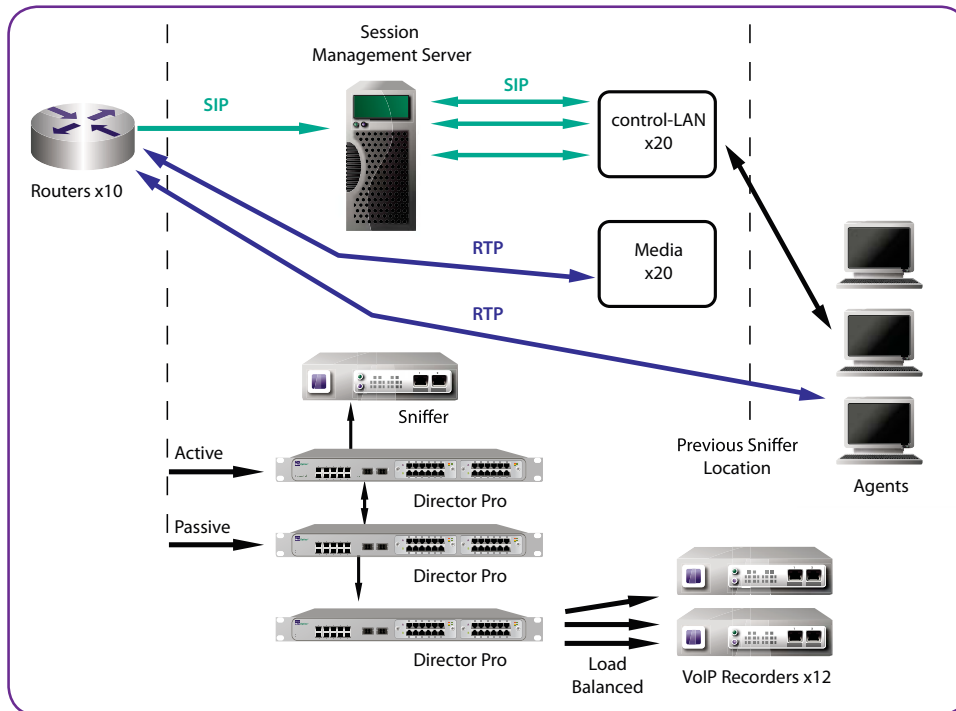
Each call is set up using SIP traffic that passes through the Session Manager and on to a control LAN card and a media card. The media card is responsible for greeting a caller and initiating “hold music” using RTP, which goes directly to the router.

When an agent becomes available, the session management server sets up that agent’s phone through the control-LAN card using SIP traffic. The session management server

then transfers the call from the media card to the agent. During a call, an agent can put the caller on hold and transfer the call back to a media card. Each time the call is transferred, it may go through different control-LAN and media cards which have different IP addresses and ports. So the call cannot be kept intact through IP addresses alone; SIP information is needed to identify the RTP streams.

distributes call traffic evenly to the recorders, preventing the loss of calls that would happen if any recorder becomes oversubscribed. Its filtering capability is used to select only RTP traffic to send to the Load Balancer, which distributes it evenly to the recorders. Because the Load Balancer is dynamic, it monitors the actual load going to each recorder and ensures that each call is directed to the recorder with the lowest load, completely independent of the IP addresses in the packets. The Dynamic Load Balancer uses the IP addresses only to ensure that call

flows are kept intact on each recorder, and not to determine where to direct the call. The Director Pro's filtering capability is also used to select the SIP traffic and regenerate copies of it to all of the recorders for call identification.



Stack of two Director Pro devices sending traffic to a third Director Pro, which serves as a load balancer

Enabling a High-Availability Architecture for the Call Recording Solution

For its call-recording solution, the Telco uses routers made by a leading vendor. These are configured for high availability; each router has a hot spare passive router available to back it up.

Two Net Optics Director Pro™ units extend and continue this high-availability architecture. One handles traffic from the primary routers; the other handles traffic for the backup routers. The Director Pro devices are connected in-line at the router outputs. Each device provides 12 in-line connections, so the pair can easily accommodate connections to 10 or 14 routers.

The Director Pro units aggregate the SIP and RTP traffic and send it to a third Director Pro for load balancing. They also provide a convenient place to access the traffic with sniffers for troubleshooting, a significant benefit of the solution. As shown in the diagram, the previous location of the sniffers had caused them to receive duplicate traffic, which created confusion.

Dynamic Load Balancing Prevents Oversubscription

Key to the solution is application of a bank of VoIP recorders that provide enough capacity to capture thousands of calls simultaneously. The Director Pro's Dynamic Load Balancer

Link State Awareness Provides for High Availability

This solution relies on link-state awareness, an important feature of the Load Balancer that is not available in other monitoring load-balancing solutions. Link-state awareness means that when a recorder fails (drops the link to the Director Pro), the Load Balancer automatically redistributes the traffic to the remaining recorders. When the down recorder is restored to service, the Load Balancer automatically adds it back into the load balancing set. With a dozen or more recorders deployed, temporary loss of a recorder due to failure or maintenance is a regular occurrence, so link-state awareness is essential to prevent significant call recording loss and consequent issues.

Supporting the Value of a Major Resource

Thanks to Net Optics Director Pro and its unique Dynamic Load Balancing feature, this Telco can now optimize the utility of its vital call center monitoring resource. From the high volume of calls it receives, the Telco can sort through and assay those it chooses to monitor with confidence that they are intact and their valuable information is accessible. The high-availability call recording architecture also helps this Telco respond to customer concerns quickly, accurately, and consistently.

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BRAIN FORCE
smart IT for your business

BRAIN FORCE Software
Ohmstr. 12
63225 Langen
Germany

T: +49 6103 906 767
netoptics@brainforce.com
www.network-taps.eu

Corporate Headquarters
Net Optics, Inc.
5303 Betsy Ross Drive
Santa Clara, CA 95054
Phone: 408-737-7777

Visit www.netoptics.com

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