

# Comprehensive service assurance solutions

for VoIP service providers





## Turning a technological threat into a profitable opportunity

**For the first time in a hundred years, customers, not service providers, are dictating phone technology. The margins are smaller, the technology is complex, and service providers are naturally worried. But thanks to VoIP and triple play solutions from Anritsu, you can now see the long-term opportunities that lie beyond the immediate threat.**

For decades, the telephone industry has invested in tried-and-true Circuit-Switched networks. And for many carriers, the large capital expenses have long since been amortized. Suddenly, new Packet-Switched Internet technologies can provide subscribers with high-quality telephony at unheard of low prices. What's more, the competition is heating up as new players take advantage of existing cable and data networks. Now the question is, who is strong enough to survive in the triple play world?



The MasterClaw™ VoIP solution from Anritsu gives you real-time Mean Opinion Scores. These represent the voice quality over your network using the internationally recognized 1-5 scale.

### How to survive in a turbulent market

Maintaining your competitive edge basically relies on two things: getting new services to market as quickly as possible, and ensuring your subscribers the very best Quality of Service. Maintaining your profitability also relies on two things: keeping your operating costs low, and attracting new subscribers. Anritsu can help you in all of these key areas.

### Full end-to-end visibility

MasterClaw™, our carrier-class OSS package for network and service monitoring, is the world's first Voice-over-IP solution to provide end-to-end troubleshooting and service visibility across converged networks. That means service providers can see both their Packet-Switched and SS7 networks – including session tracing, reporting of voice and data service quality, and comprehensive Key Performance Indicators for SLA management. In short, you get everything you need for efficient and cost-effective network monitoring in a single, user-friendly package.

### Reduced operational expenses

Because Anritsu helps reduce the perceived complexity of a network and provides full overview, maintaining the network is both faster and easier. In other words, service availability remains high, operational costs are kept low. Moreover, complete end-to-end, real-time monitoring ensures faster, fault-free provisioning when the time comes to introduce new services or upgrade services to existing subscribers.

You can't make it go away!



Our carrier-class OSS package for network and service monitoring, is the world's first VoIP solution to provide end-to-end troubleshooting and service visibility across converged networks.

### Greater customer satisfaction

Since VoIP is a relatively new technology, many subscribers are still nervous about the quality. Are the calls going to go through? Will the voice quality be acceptable? We can answer these, and many other questions regarding network performance, providing both non-intrusive, real-time monitoring of Mean Opinion Scores, plus extensive data collection, storage, and analysis.

Because service providers know exactly what's going on, it's easy to keep the network functioning at its best. And to optimize performance to make the best even better.

### Building on a firm foundation

Our roots are in traditional fixed-network telephony. But we are also pioneers of network and service-assurance systems for mobile technologies – including GSM, GPRS, and UMTS – so it's not surprising that we're now one of the world's leading providers of VoIP and triple play solutions, and ready to move into Fixed Mobile Convergence solutions, too. In short, because we truly understand our business, we're in an ideal position to understand yours, too.



## Span all network technologies to reduce risk and simplify management

**Deploying VoIP involves both traditional Circuit-Switched technologies and IP-based topologies. This dramatically increases the complexity of the infrastructure. But since Anritsu VoIP solutions span both of these network types, it's easy to gain overview and manage the converged system.**

Although dropped packets are not a major problem in ordinary data communications, they can destroy a real-time voice conversation. That's why providers of VoIP and triple play service bundles need better, more sophisticated monitoring solutions than ordinary Internet Service Providers. After all, the key drivers for VoIP are the ability to provide a greater range of services while reducing operating expenses.

Anritsu's unique VoIP solution combines everything you need in a single, comprehensive system. As a result, you can gather accurate network trend data across the entire system, which simplifies network planning and dimensioning in terms of both infrastructure and service.

### **Active enterprise monitoring**

Our Enterprise Customer QoS/SLA solution monitors both enterprise and core network and service quality using active test agents to generate simulated traffic and rate performance. Since these agents are associated with specific enterprise customers, network and service operations personnel can control them to replicate end-user behavior.

### **Proactive problem detection**

Thanks to our scalable design, service providers can collect and store virtually unlimited amounts of signal-

ing data – for both historical and real-time call-tracing, troubleshooting, and performance analysis. Moreover, automatic detection of network- and service-performance problems helps make better use of technical personnel and ensures faster resolution.

### **Customer satisfaction from end-to-end**

There are two sides to service quality: actual technical performance and the subjective evaluation of this performance by subscribers. Anritsu's comprehensive set of performance-management tools makes it possible to monitor service quality throughout the entire converged network.

Not only can service providers measure a wide range of technical parameters, it's also possible to measure how subscribers personally experience service levels through voice quality monitoring of all calls in the network. For example, if latency and jitter are causing conversations to deteriorate, you need to know. And we can tell you.

Our non-intrusive monitoring solution continuously examines all network traffic. In addition to the all-important voice traffic, we also help service providers monitor the performance and behavior of non-voice applications and services, such as IPTV and data services.

### **Living up to your SLAs**

Service Level Agreements define the qualitative aspects of service performance through analysis of quantitative parameters – Key Performance Indicators. These include perceived voice quality, call attempts and success/failure ratio, call duration and call-failure analysis, call setup time, and release value distribution.

Anritsu makes it easy to tailor your SLA reports to include customer/partner-relevant KPIs.



Our MasterClaw VoIP system measures and reports on a wide range of technical parameters. It's even possible to measure how subscribers experience service levels through voice-quality monitoring of all calls in the network. For example, if latency and jitter are disturbing conversations, MasterClaw can tell you.

Our powerful data-warehouse solution makes it possible to gather large volumes of signaling data, session quality of service data, and measured voice quality services. Are you meeting your obligations to your customers and partners? Thanks to Anritsu, you'll always be sure.

#### **Making the network even better**

Network data collected and stored by our MasterClaw VoIP system can also be used in other important ways, like trend analysis and network/service dimensioning. By examining the volume and type of traffic in relation to network geography and time of day, service providers can optimize and expand their network to meet the ever-changing needs of their subscribers. Not only does this reduce churn, it can actually help attract new subscribers – a critical issue in a very competitive market.

#### **The vocabulary of VoIP**

**Jitter** – variations in packet arrival time that can cause a voice conversation to break up into irritating "clumps."

**Latency** – the time it takes for a packet of data to get from one point in the network to another.

**MOS** – Mean Opinion Score, a numerical representation (ranging from 1-5) of customers' perception of the quality of a service experience, such as voice, video, etc.

**RTP** – Real-time Transport Protocol, the internet standard for the transport of real-time data, including audio and video.

**SIP** – Session Initiation Protocol, an Internet Engineering Task Force (IETF) standard protocol for initiating an interactive user session that involves multimedia elements (i.e. video, voice, chat, gaming, etc.)

**SIP Spam** – unsolicited messages coupled with voice and video clips that can seriously drain network capacity and irritate subscribers.



## Greater efficiency throughout the entire converged network

**Faster resolution of technical problems. Automation of trivial tasks. Simpler installation and troubleshooting of access equipment. Less need for visits to subscriber sites. These are just some of the many ways Anritsu's VoIP solution can help your business become more efficient and more profitable.**

As always, the secret to efficiency is visibility. You've got to be able to see problems before you can take any necessary action. Not only do we provide this visibility, we also give you practical and intuitive tools so you can get the job done quickly and easily. That's why Anritsu's solutions often feature the industry's most competitive Total Cost of Ownership.

### **A proven design**

Anritsu's VoIP solution is based on the use of intelligent probes – the same ones already used by our many MasterClaw customers for monitoring PSTN, GSM, GPRS, and UMTS networks. For existing MasterClaw users, this can result in substantial savings when upgrading their system to include attractive new VoIP services.

Because these probes are intelligent, they can be used for active, automatic network testing, which reduces the need for costly and time-consuming manual field-testing. In addition to reducing capital and operational expenses, this solution also reduces strain on the network and drain on central data-processing resources.

### **Integrated access-point tools**

Our easy-to-use toolkit helps optimize your workflow. For example, when installing network edge devices, such as SIP phones and SoftPBXs, installation and connection of the device can be tested remotely. That means technicians have access to everything they need for verification of delivered services and troubleshooting – without having to make one or more site visits.

### **Full integration with other OSS systems**

Our MasterClaw VoIP system integrates seamlessly with a wide range of other OSS service and revenue assurance systems, such as CRM, billing, fraud, and service management. This ensures maximum business synergy through efficient interoperability and improved workflow.

For even greater efficiency, all reports and applications are immediately available via a web-based portal. The MasterClaw Portal gives users a single, consolidated view of your network and services through "dashboard scorecards", which display real-time information collected and processed from the entire range of MasterClaw probes and applications.

### **Build on your existing skills**

When working with Anritsu VoIP tools, users will immediately recognize the familiar interface and straightforward operation they've already seen in other Anritsu equipment. And since we provide an uninterrupted learning curve, service providers enjoy a significant competitive advantage over those who must first learn to use the new system.

Facing technology challenges? Need lab conformance testing?  
Want better service-quality monitoring? Just ask!



Our OSS solutions translate complex, technical data into understandable operational information so service providers can enhance their Quality of Service, increase their efficiency, and improve their profitability.

#### **Training and professional services**

We're also eager to share our knowledge with you first-hand. Like pointing out some of the common VoIP-related problems you're likely to face in your market. Or helping spot the small indications that suggest a major trend is underway. Or ensuring retainability. Training and on-site support? Just ask!

#### **Total life-cycle offering**

With a complete solution portfolio spanning from R&D and manufacturing to installation, maintenance, and service assurance, Anritsu is uniquely positioned to support you throughout the entire network and service lifecycle.

Anritsu has long been a leading supplier of test instrumentation and network monitoring solutions. And even though we've been in the business for over a century, we're also at the industry forefront, pursuing "Original & High-Level" technologies. For example, we helped pioneer solutions for GSM networks. We were the world's first provider of GPRS test and monitoring solutions. We're leaders in test and monitoring of UMTS systems and user handsets, too. And now we're actively helping service providers implement intelligent VoIP solutions and triple play service offerings.

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