

Comprehensive service assurance solutions

for wireless operators





Will a standard “me too” solution help you stand out in a crowded market? Probably not.

We make your business case work

OK. Here’s the situation. Some mobile markets are booming with new subscribers. But others have hit the saturation point. And everywhere, loyalty is weak and churn is strong. Let’s face it – if you’re a wireless operator, life isn’t easy these days. You need a new kind of triple play – one that helps you retain current subscribers, attract new ones, and increase service revenues. Good thing you found Anritsu...

Focused expertise

Your subscribers are the life-blood of your organization. If they’re not happy, they’ll go somewhere else. Anritsu gives you the analytical tools you need to convert real-time network data into business intelligence. And that means you can optimize your network, develop more attractive services, and generate greater profits.

Anritsu has been a leading innovator of test and measurement solutions for the telecommunications industry for over a century. And for the past decade, we’ve focused on developing robust Operational Support Systems that unite network infrastructure with business systems to give you a genuine competitive advantage.

Uniquely competitive OSS

The OSS market is crowded with “off-the-shelf” products. The problem is, there aren’t any “off-the-shelf” networks – your infrastructure is unique and the technologies are getting more complicated all the time.

What’s more, your subscribers are unique, too. If they weren’t, you’d never need to draw up SLAs, would you? Will a standard “me too” solution help you stand out in a crowded market? Probably not.

Having pioneered important service assurance solutions for mobile technologies – including GSM, GPRS, and UMTS, we understand complicated network structures. That means we can quickly tailor your OSS package to meet these unique needs. Moreover, our solutions let you incorporate new services and migrate to new technologies without scrapping your basic monitoring platform, which saves both time and money as your business grows.

Time as a competitive factor

Fast introduction of new services is a critical competitive factor. That’s because a “first-strike advantage” can help win new subscribers and reduce churn in a crowded market. Because Anritsu’s OSS solutions reduce the risk of performance failures during the early phases of the service life cycle, both service quality and customer satisfaction remain high.

Six key areas

Each of the solutions in our service assurance framework has been designed to help maximize the performance and profitability of existing services and infrastructure. After all, reducing CAPEX and OPEX has a direct effect on your bottom line. Moreover, our solutions let wireless operators examine customized views based on either real-time or historical data.



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. In fact, Anritsu received Frost & Sullivan's 2005 Product Line Strategy Award in the World Wireless Network Monitoring Market.

We gather it through converged monitoring so we can examine the performance of the network, services, and external partners, and monitor customer experience.

Of growing importance, our robust OSS solutions also help combat the security threats posed by IP technology. In addition to the ever-present threat of viruses, holes in some mobile handset software can allow hackers to browse through address books and eavesdrop on conversations. And SMS and voice spam are also on the rise. Happily, Anritsu can help you identify hackers and spammers before they paralyze your mobile network.

True end-to-end monitoring

Our solution is the most scalable monitoring solution available from any source. Moreover, our modular hardware and software design, distributed architecture, and use of intelligent probes allow your system to grow to over 10,000 monitored links. That means you can cover a whole network end-to-end. No wonder we've become the #1 service and network monitoring solution for wireless operators worldwide.



The greatest challenge facing wireless operators is to gain new revenue through new services.

MasterClaw™ – the engine that drives our solutions

Anritsu's popular MasterClaw™ service-assurance engine lies at the heart of our OSS solutions. Because MasterClaw provides end-to-end overview of network performance and key services, plus the ability to perform drill-down troubleshooting, it is well-suited for both service and revenue assurance applications.

Monitoring links, not elements

As opposed to simple fault and performance monitoring based on information gathered from network elements, MasterClaw acquires data by monitoring the links between these elements. That's because signaling gives the true picture of the network's performance, providing operational insight far beyond simple fault indications and isolated performance data. Moreover, our ability to combine passive monitoring with active service testing enables us to spot most problems before customers do. That means higher customer satisfaction, less churn, and greater profits.

Competitive, next-generation architecture

Using non-intrusive probes, MasterClaw gathers signaling data from across the entire network – both Circuit- and Packet-Switched domains. These probes interface to the network to process data, generate alarms, perform protocol analysis, trace calls, and create Call Data Records (CDRs). This architecture is particularly bandwidth-efficient since each probe carries out processing and storage tasks independently. Thus, there is less drain on centralized resources – a major bottleneck in many traditional monitoring systems.

Historical and real-time data

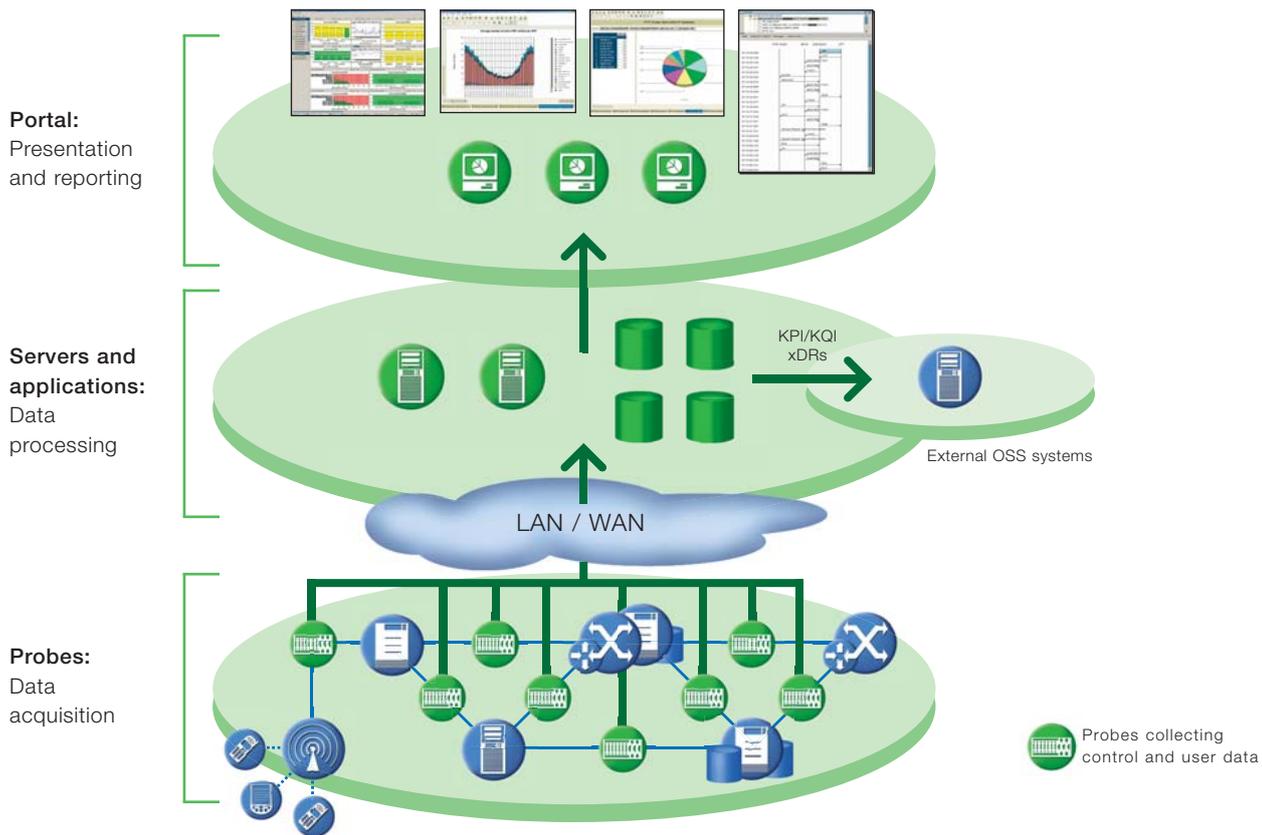
Because MasterClaw includes a comprehensive data warehousing solution from Oracle, historical data is always available for analysis. For example, by examining traffic patterns, it's possible to spot special areas of network congestion that may be causing bottlenecks or other service problems. And all the while, real-time data is being gathered by the probes and sent back to the system – ideal for pinpointing an acute problem. In short, both protocol analysis and call trace functions are significantly easier when all the necessary data is right there at your fingertips and displayed in a straightforward, intuitive manner.

Comprehensive service-assurance framework

Not only is MasterClaw the most scalable solution for service assurance, it also supports the widest range of applications. Network troubleshooting. Network quality monitoring. Service quality monitoring. Customer QoS monitoring. Customer SLA monitoring. Partner/supplier monitoring. No matter what your need – from root-cause analysis to value-chain analysis, MasterClaw provides a robust and reliable framework for your wireless business.

Ready to meet today's needs – and tomorrow's

The greatest challenge facing wireless operators is to gain new revenue through new services – ultimately providing a complete triple play offering. As a result, wireless networks are evolving from 2G through 2.5G to the newest 3G and IMS networks. To pay for licenses and new infrastructure, it is vital to minimize operating expenses and maximize the potential of the existing



The MasterClaw system is based on a three-layer architecture with distributed intelligence: The data acquisition layer with distributed probes for end-to-end coverage, the data processing layer with servers and applications, and the presentation layer with an advanced, web-based GUI portal.

infrastructure – which is exactly what MasterClaw and its associated OSS solutions have been designed to do. Not only can new cash-generating services be introduced rapidly and cost-effectively, when it's time to migrate towards IMS and possibly even a fixed-mobile convergent (FMC) architecture, the MasterClaw framework and probe system can continue to be used, thus considerably reducing the risk and cost of transition.



There are many good reasons to choose an OSS solution from Anritsu - no wonder we're now the #1 service and network monitoring solution for wireless operators worldwide!

10 reasons we should be on your OSS shortlist

Tired of the marketing spin you get from most OSS providers? Here are the hard facts that make our OSS solution unique – and your wireless business uniquely competitive.

1. Integrated Network-Service-Customer-Partner monitoring

Simple things, like understanding which terminal types generate the most MMS traffic, often represent vital business intelligence when negotiating deals with handset manufacturers. Because we can provide detailed information regarding the customers' true identity and location, our OSS solutions can become vital business support systems.

2. Complete UMTS solution

Not only do we cover the entire Packet-Switched and Circuit-Switched domains of the core network, we also provide full monitoring coverage of the UTRAN network. This is important since 80% of all UMTS problems relate to UTRAN. And, MasterClaw is compliant with Release 99 through Release 6 for a truly futureproofed solution.

3. End-to-end procedure tracing

Network-wide tracing of all signaling related to a given action or procedure is critical when troubleshooting and identifying bottlenecks. Our unique call-trace solution seamlessly handles both historical and real-time data. And our simple user interface provides scenario-driven routines so even network novices can perform powerful analysis. "Expert Mode" Call Trace has all the tools needed for both network-centric analysis and user-centric analysis. And it's a true multi-user system so many people can access data simultaneously.

4. Web-portal access with customizable interface

Access all system functionality using a standard web browser. There's even a "dashboard" for easy overview of key performance metrics. Moreover, since only data is transferred between the application server and the client, users can effectively use MasterClaw on their own PCs, even over slow connections. They can even export data to Microsoft Word and Excel – ideal for comparing individual service KQIs and customer-specific product KQIs and SLAs.

5. Powerful network protocol analysis

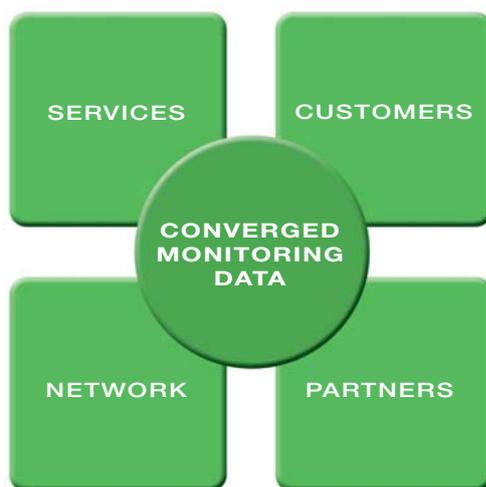
With features normally only seen in portable instruments, Anritsu lets you solve the most complicated network problems from your PC. MasterClaw Protocol Analysis supports both historical and real-time analysis, and contains powerful, yet easy to use, filters for extra efficiency. It even features a unique "Quick Filter" so users can point to a certain incident and ask to find all similar events or scenarios.

6. Real-time Traffic Observer

Work at a Network Operations Center can be extremely stressful – so tools for this environment must provide instant overview and have enough built-in intelligence so that trouble tickets are directed correctly. The intuitive MasterClaw Traffic Observer covers all the different network elements and interfaces/protocols in complex wireless networks to provide pro-active, end-to-end traffic monitoring.

7. Tap into the power of hybrid data records

As networks and services become increasingly complex, wireless operators need hybrid data that combines both signal- and user-related information. MasterClaw can



Performance data gathered by MasterClaw can be filtered to provide numerous “points of view.” Our integrated data warehouse lies at the core, providing correlation across the views and seamless drill-up/down. That means service providers enjoy both real-time indications and monitoring, plus historical analytical capability.

provide these records in near-real-time from access as well as core mobile network parts. Moreover, they can be enhanced through the use of information servers. For example, the system can add IMSI and/or MSISDN identifiers if only TMSI (P-TMSI) are present in the signaling. MasterClaw can also send protocol data units in real-time to relevant third-party systems.

8. Data warehousing

The ability to handle huge amounts of data is becoming more and more important as mobile network operators track service quality and network performance and study the correlation between these metrics. Our data-warehouse solutions build on Oracle databases and Oracle Discoverer-based reporting. Data can be easily accessed and manipulated using a standard web browser. Customization and individual access rights let operators build presentations suited for internal use as well as external reporting.

9. Automated problem detection and alarms

The MasterClaw Traffic Observer automatically warns of error conditions – from simple detection of low-level equipment faults to high-level, service-centric problems. It can even define threshold alarms based on trend analysis of key parameters and detect deviations from normal traffic. Alarms can be handled within the MasterClaw itself or exported to a third-party alarm handler through SNMP.

10. Holistic QoS monitoring methodology

Our unique combination of passive and active monitoring creates a superior set of QoS metrics. By monitoring the downlink service quality in the user’s handset, we can better understand the actual end-to-end quality. And by combining end-user quality with QoS data from the network, wireless operators can gain a truly holistic view of the quality of both the uplink and downlink.



Wow. Wireless. Wonderful.

Customer satisfaction doesn't happen by accident

What does it cost to gain a new customer? Probably more than you'd like. And considering the growing market saturation, it costs more each day. So it makes sense to do everything possible to keep your existing customers. After all, they represent the "low-hanging fruit" when it comes to maximizing your profits.

Losing the wireless magic

Not so many years ago, when mobile phones were the exception rather than the rule, customers still had a magical feeling each time they punched in a number and reached their connection. Wow. Wireless. Wonderful.

Today, however, even the most sophisticated technology is something customers take for granted. They are impatient if new services aren't immediately available. And they start searching for a new provider the moment something goes wrong with their existing service. Loyal customers are becoming as hard to find as TDMA phones.

Creating the best possible experience

Customer Experience Management is the art of making sure your customers have the best possible experience while using one of your services. And in a crowded marketplace, CEM is essential if you want to maintain your subscriber base and reduce churn.

But you can't charm them into loyalty – like that great waiter at your favorite restaurant. And you can't buy their loyalty – not if you hope to maintain any of your ever-shrinking profit margins. The truth is, there's only one way you can succeed – through high-quality services.

Not only do your present services need to be incredibly reliable, you need to be in the forefront when it comes to introducing a full "triple play" service offering. And these, too, have to be incredibly reliable.

If you don't have the right services yet, you need to get them launched. That's why we're here. And if they aren't reliable, you need to fix them fast. We're ready to help. And if they are reliable, you'll want to make them even better. We can help you with that, too.

Uniquely competitive OSS. That's our promise. And thanks to MasterClaw's unique ability to actually record how customers perceive your network, we can prove it, too.



MasterClaw™ from Anritsu comes with a user-friendly portal and easy-to-overview reports.



- Higher availability of current services
- Faster introduction of new services
- Better management of roaming agreements
- More profitable use of infrastructure
- Happier customers - reduced churn
- More loyal customers

Customer Experience Management is the art of making sure your customers have the best possible experience while using one of your services. And in a crowded marketplace, mastering CEM is essential if you want to maintain your subscriber base and reduce churn.

Roam at your own risk

Roaming users generate far more revenue than almost any other subscribers. That's because they are more likely to make expensive international calls – while away on business or off on vacation. But it's also easy to lose them. After all, a competitor's network is only a few menu choices away.

So what happens if a roaming connection fails? Plenty! A simple service failure can affect thousands of subscribers. And even though it's not your network, the chances are, they'll still blame you. Happily, thanks

to Anritsu OSS solutions, you can effectively manage your roaming agreements, improve service availability, and thus increase revenues – by keeping your customers happy.

Creating confidence

With Anritsu on your team, you can confidently monitor network and service quality. Increase customer satisfaction. Reduce churn. Attract subscribers from other networks. Sound impossible? It isn't – we do it every day for wireless operators the world over.



Off-the-shelf solutions are great if you have off-the-shelf customers.

Our professional services are backed by a century of experience

The need for proactive network troubleshooting, performance analysis, and monitoring tools has never been greater than it is today. The convergence of telecommunications and data communications and rising service expectations mean that wireless network operators must monitor their networks using the best possible solutions on a 24/7/365 basis. So how can they pull it all together?

Each of our customers is unique

Every wireless operator has a slightly different reason for contacting us. So we always begin with the oldest, most effective communication technique there is – listening. One of our most important services is to help operators develop a cohesive monitoring strategy that conserves both financial and human resources.

Our Advisory specialists can help you identify new trends, develop new services, and fine-tune your business plan to meet the needs and expectations of your local market. Perhaps most important of all, since we are 100% vendor-independent, our solutions provide superior interoperability, untainted by other business agendas. That gets your project off the ground and on its way to completion faster and more effectively.

Remarkably, by defining common goals, maintaining positive attitudes, and decentralizing the decision-making process, our teams have actually succeeded in reducing the time for customized project development by over 40%.

From theory to practice

Deployment is the second of our key professional services. Here, we help wireless operators develop the customized OSS solutions that address their business needs, make optimal use of their infrastructure, and give them a genuine competitive edge. Not only can we take on the role of project managers during the deployment phase, we can also smooth integration with other OSS solutions – both our own and from third-party suppliers. As always, our interest is to create best-of-breed solutions, whenever and wherever we can.

Sharpening the competitive edge

We'd like to say that you can "launch and forget" our solutions. After all, that's what happens with most off-the-shelf products. But in truth, maintaining competitiveness means on-going optimization. Therefore, training, after-sale support and system administration are also key features of our professional services program. Markets change, technologies evolve. We know how to help you keep pace with these critical developments.

Building strong partnerships

Anritsu has been helping the telecommunications industry optimize business performance for the last century. And with a complete suite of interoperable products that span the entire lifecycle of your network and services, we are unique in our ability to provide mobile network operators with end-to-end converged monitoring. From GSM, GPRS, to UMTS, and HSDPA



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only Anritsu provides a seamless migration path that allows you to scale your OSS solution from a single city to an entire region, easily and efficiently.

Closer dialog

Thanks to our close professional relations and open dialog with operators and equipment vendors the world over, we've made sure we created the right products and at the right time. So maybe it's time you talked to us...

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