Uniquely competitive OSS

Off-the-shelf products are great if you have off-the-shelf customers

For over a century, Anritsu has been a leading innovator of test and measurement solutions for the telecommunications industry. And for the past decade, we've been developing robust Operational Support Systems to bridge that gray area between network infrastructure and business systems. These are the analytical tools that turn real-time network data into customer satisfaction and operational profits. And they are our primary focus.

Why customized OSS?
After over 100 years of constant refinement, the business case for traditional fixed-line operators is well understood. On the other hand, wireless operators have not enjoyed this luxury of time. Their business case is still evolving. And as converged networks become the rule rather than the exception, the business dynamics of modern telecommunications remain as complicated as ever.

How can a service provider stand out in this crowded and competitive arena? How can a service provider quickly adapt to changing needs and emerging technologies? With standard, off-the-shelf OSS products? Not if you ask an Anritsu customer.

Well-proven solutions
Custom-tailored Operational Support Systems from Anritsu unlock the hidden resources that make organizations uniquely competitive. Our world-class portfolio of OSS solutions has been developed based on our close working relationships with Tier 1, 2, and 3 telcos

the world over. Through our long history, we've gained an enviable degree of market understanding and are thus able to spot trends early and roll out our solutions sooner. This is also why our core products contain so many cutting-edge features - even before we start to align them to specific geographic, commercial, and technical needs.

Understanding complicated technologies
Our historical roots are in fixed-network telephony. However, we have also pioneered important service assurance solutions for mobile technologies – including GSM, GPRS, and UMTS. Moreover, we are now one of the world's leading providers of VoIP monitoring solutions.

Because we understand complicated technologies and network structures, our solutions are technically elegant. Of even greater importance, they stand the test of time, enabling our customers to incorporate new services and migrate to new technologies without scrapping their fundamental monitoring OSS platform.

Achieving business goals
Since we are 100% vendor-independent when it comes to network infrastructure, our recommendations provide superior interoperability, untainted by other business agendas. In fact, our exceptional ability to unite technology and business goals has become an Anritsu hallmark, which is reflected throughout our range of best-of-breed OSS solutions.

Figure: Circular diagram with "PROFESSIONAL SERVICES" at center, surrounded by:
- CUSTOMER QOS/SLA MONITORING
- FRAUD AND REVENUE ASSURANCE
- PARTNER PERFORMANCE MONITORING
- NETWORK TROUBLE-SHOOTING
- NETWORK QUALITY MONITORING
- SERVICE QUALITY MONITORING

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.

Fast deployment

Given the constant pressure to cut time-to-market when introducing new services, many service providers choose to skip OSS customization in the hope of speeding deployment. The truth is, there are no plug-and-play solutions in this business. Hence, experienced operators know that up-front customization is far preferable to launching an ineffective solution, followed by months of expensive tweaking - and apologizing to dissatisfied customers.

Providing unique insights

Unlike many other vendors, our solutions and tech-nologies span the entire network and service lifecycle, as well as the vertical network, control, and service layers. Our solutions provide unique insights into the function and performance of telecommunication networks and services so owners, operators, and vendors can make informed business decisions that drive their profitability.

Can we say it more clearly? It's even part of our corporate promise: "Discover What's Possible."

"Anritsu is at the forefront of wireless network and service optimization."

- major Russian operator

Meeting new business challenges

Changing technologies. Changing customer needs. Changing business challenges. Today's service providers must balance these key issues so their services reflect the social and commercial needs of their markets. New wireless technologies are putting pressure on mobile operators to bring broadband data services to the handset. And network convergence is putting pressure on fixed operators to develop innovative new business models. Here are some of the key issues.

Managing increased complexity
The complexity of today's network infrastructure can make it difficult - if not impossible - to gain the overview necessary to make informed decisions. This is particularly true with the advent of new IP/data services and increased mobile traffic. Modern OSS solutions must provide 100% overview across individual network technologies if service providers are to manage their complex value chain and compete successfully.

Increasing competition
New players are constantly entering the arena - and with a greater variety of services. Cable operators are expanding their services from simple TV delivery to a powerful combination of video, data, and VoIP. Fixed operators are introducing mobility by establishing fixed-mobile convergent networks. And wireless operators are adding high-speed data services to their product mix. In short, all three segments now have "triple play" packages.

It is no longer enough merely to monitor network performance. Service providers need to understand the impact of their network's behavior on their customers since network and service performance have become critical differentiators. In fact, Customer Experience Management (CEM) is becoming a fundamental requirement for network owners and service providers alike.

Shifting to customer- and service-centric management
Telecommunications services have become mission-critical for many business subscribers. This goes far beyond the sophisticated data-backup and disaster-recovery procedures that are essential for many financial institutions. With the advent of VoIP, even basic voice services can be in jeopardy if a network fails or underperforms.

The Service Level Agreements (SLAs) that spell out the individual customer's Quality of Service (QoS) now play a central role in the business plans of both the service provider and subscriber. Unlike the situation some 5-10 years ago, today's enterprise subscribers want proof that their operator is truly living up to all the terms of the agreement and want immediate resolution of any problems. And failure to do so can result in stiff financial penalties. Performance monitoring, therefore, is a critical OSS area since it enables the operator to rectify problems before they become problems for subscribers.

Optimizing operational efficiency
With the constant need to maximize margins while minimizing CAPEX and OPEX, there is increased focus on implementing better OSS solutions. These, in turn, make it possible to manage both services and SLAs

Uniquely competitive OSS

Industry experts agree - services are driving today's market - from simple messaging to IPTV. Users want the speed of fixed-line service plus the convenience and mobility of today's "smart" handsets. And service providers must find ways to satisfy these needs profitable despite lower ARPU. OSS holds the key to success.

in a cost-effective manner. And as service providers reduce headcount to save money, they need efficient OSS solutions to simplify and automate key activities.

Robust OSS solutions are also needed to combat the security threats posed by IP technology - hackers and viruses. Holes in some mobile phone software allow intruders to browse through address books and eavesdrop on conversation. And industry experts warn that voice spam over VoIP could easily paralyze telephone networks; one current device is capable of sending 1,000 unsolicited 30-second voicemail messages every five seconds!

Seeking focused expertise

The growing complexity of the services provided to subscribers and the need for expertise across several different communications technologies means that

fewer service providers are developing their own in-house solutions. This mirrors the situation experienced in Customer Relationship Management (CRM) where there has been a clear move towards outsourced, primary-focus expertise. Moreover, service providers are seeking vendors with a broad range of interoperable OSS solutions rather than individual, stand-alone products.

"The Anritsu solution offers significantly more flexibility, scenario options, and historical data." *- major U.S. operator*

Tested products. Tailored solutions.

Modern telephone networks generate a staggering amount of complex performance data. Anritsu's OSS solutions are designed to collect all the relevant data in a reliable manner and to turn this data into meaningful information. We accomplish this by taking our well-proven test and monitoring solutions and tailoring them according to the specific business and technical needs of our customers.

First-strike advantage

For both fixed and mobile operators, the rapid introduction of new services is the rule rather than the exception. More and more, it is has become the key to remaining competitive. After all, when subscribers have many operators to choose from, a "first strike" advantage is often a major advantage in the battle to win new subscribers and reduce churn. OSS solutions from Anritsu have been designed to facilitate fast deployment of new services and reduce the risk of performance failures during the early phases of the service life cycle, thus ensuring high service quality and customer satisfaction.

Unique data views

The performance data gathered via Anritsu solutions can be easily categorized and filtered to provide four clear "points of view": the Network, Service, Customer, and Partner. The Network viewpoint gives the service provider a look at the internal production resources - his network infrastructure - to see if it is operating optimally and to troubleshoot possible problems. Services represent the products customers are buying. This lets the provider see how the customers themselves experience quality. It also helps the provider monitor usage profiles to judge the effects of marketing campaigns, price adjustments, etc. The Customer view allows operators to monitor individual customers

with strict SLAs or customer groups, such as pre-paid customers. Finally, the Partner view allows service providers to monitor the performance of their partners, the delivery of third-party content, traffic connections, etc.

The MasterClaw™ engine

Our 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.

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.

Solution areas

Each of our solutions has been designed to maximize the profitability of the existing services and infrastructure. Service providers can examine customized data views through an intuitive, browser-based portal, turning complex, technical data into understandable operational information. Here are the basic Anritsu OSS modules, which are complemented by our full range of professional services.

Network Quality Monitoring gives service providers real-time performance visibility and overview. This

SERVICES   CUSTOMERS

CONVERGED
MONITORING
DATA

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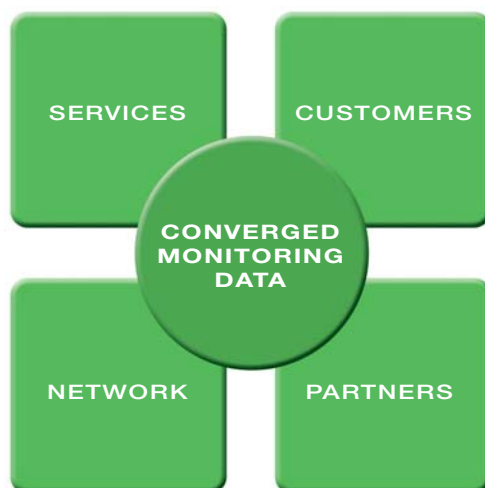
Performance data gathered by MasterClaw™ can be filtered to provide numerous "points of view." Our integrated data warehouse lies at the core, providing correlation across the views and seamless drill-up/down. That means service providers enjoy both real-time indications and monitoring, plus historical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

helps them ensure high network availability, detect problems faster, and optimize the use of network resources.

Network Troubleshooting includes point-to-point tracing across converged networks for both wireline and wireless networks. It increases revenue through reduced customer problem resolution time, downtime, and service impact.

Service Quality Monitoring provides end-to-end service quality visibility, plus a unique combination of active and passive monitoring. This ensures both service availability and quality. Data mining functions provide detailed analysis of service usage and service portfolio optimization.

Customer QoS/SLA Monitoring provides customer-centric views of service quality and supports enter-prise account management.

Partner Performance Monitoring includes monitoring of various types of partners including interconnect, roaming, and content partners. The solution reduces costs through improved value-chain management supported by partner SLA monitoring.

Fraud and Revenue Assurance includes solutions for billing verification and real-time detection of fraudulent activities, hostile hackers, and other intrusion attempts.

M **"MasterClaw helped us discover that we lost 25% of our roaming customers because of a switch problem."** *- major European operator*

She want's better quality. He wants smaller bills.
So who wants an off-the-shelf OSS solution?

Professional services
that optimize investments

Carried out by skilled and experienced specialists, our professional services have been developed to help pin down the scope of a project, create a realistic budget, and determine a workable time schedule. Divided into three main areas - Advisory, Deployment, and Management – these services are often the key to the long-term success of our uniquely competitive solutions.

Where technology meets business
Our OSS solutions provide a firm statistical foundation for telecommunications operators. And by sharing our hard-won experience, we can tailor each OSS solution to fit a unique business model. Or even tailor the business model to fit the changing needs of an evolving customer base.

Over the years, we have gained an enviable reputation for unbiased advice, project commitment, and customer loyalty. We know that without proper execution, even the best products and ideas are worthless.

Cross-functional teams
Developing solutions that represent real value requires the talents of a range of individual specialists. However, many multi-disciplinary "teams" are little more than random groups pretending to be teams. Although there is nothing wrong with "groups," they often lack a common direction, a common goal.

Here at Anritsu, our people understand the importance of defining common goals. And achieving them in a timely manner. In fact, by putting our theories into

practice, our own teams have reduced the time needed for customized project development by over 40%.

Advisory
We can help service providers develop a cohesive monitoring strategy that conserves both financial and human resources and even define an overall solution, including migration paths from other technologies.

From a business point-of-view, our advisors can help explain current industry trends, share their knowledge of third-party vendors, and help define useful interfaces and dashboards for executive decision-makers.

Finally, our Solution and Operation Audit helps service operations optimize their MasterClaw implementation and fine-tune their OSS solutions.
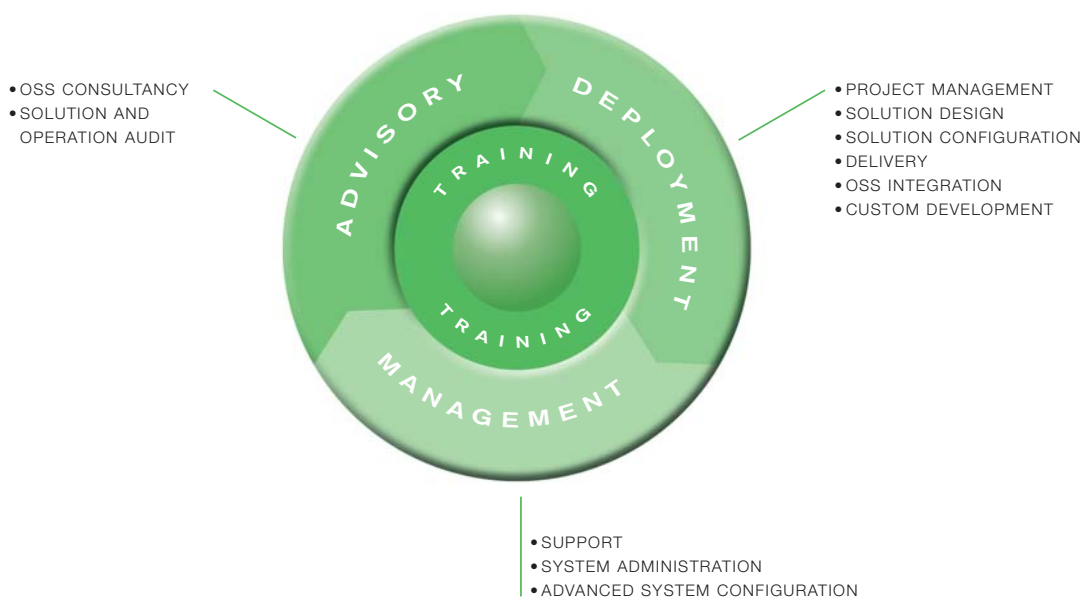
Deployment
Anritsu deployment teams help service providers define and customize OSS solutions, ensure proper systems integration, and provide on-going project-management - from contract through commissioning. For many companies, deployment is the only type of professional service offered. However, we have long recognized that this is just one phase in a continuing process, including transfer of knowledge to the people who will be running the system.

Management
After-sales support and system administration are typical tasks for our management teams. But Anritsu goes much further by providing advanced system

- OSS CONSULTANCY
- SOLUTION AND OPERATION AUDIT

- PROJECT MANAGEMENT
- SOLUTION DESIGN
- SOLUTION CONFIGURATION
- DELIVERY
- OSS INTEGRATION
- CUSTOM DEVELOPMENT

- SUPPORT
- SYSTEM ADMINISTRATION
- ADVANCED SYSTEM CONFIGURATION

For more than a century we have gained an enviable reputation for unbiased advice, project commitment, and customer loyalty. Our professional services ensure that the best products are chosen, deployed, and managed in the best possible manner.

configuration and on-going OSS/network optimization. These are critical issues if an OSS solution is to provide long-term benefits. After all, markets change and technologies evolve. OSS solutions must keep pace with these developments.

Training
Training is the thread that ties all of our services together. Training in technologies - GSM, GPRS, UMTS, HSDPA, VoIP. And product training - in Anritsu MasterClaw or any of our customized solutions.

A"Anritsu's team got our OSS solution operational, on time and on budget."
- major European operator

Big business? Small business? We can
tailor OSS solutions that fit them both.

A history of building strong partnerships

Anritsu has been helping the telecommunications industry optimize business performance for over a century. Our carrier-class test, measurement, and monitoring tools reflect our unique understanding of both the world of data communications as well as traditional telephony.

In search of excellence
As one of the only suppliers with solutions for major telecommunications and networking technologies in both the network and service layers, Anritsu is ideally positioned to help manage network convergence.

To remain focused on our own core competences, we work closely with strategic "best-of-breed" partners to provide integrated, end-to-end OSS solutions. This helps us keep pace with operator consolidation and integration trends, and shortens our time-to-market with new offerings.

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 HSUPA/HSDPA user handsets, too. And now we're actively helping service providers implement intelligent VoIP solutions.

Integration with other OSS offerings
Anritsu is a member of IEEE, TMF, and an active participant in OSS/J initiatives. We also have an extensive industry partner program to improve OSS interoperability and develop new service-management solutions. As a result, our customers enjoy OSS solutions that provide both unparalleled convenience and exceptional Return on Investment.

"Excellent and outstanding product line"
That was the clear message when Anritsu received the prestigious 2005 Frost & Sullivan award for Product Line Strategy. Not only are we early to recognize and respond to key industry trends, our products address the need for powerful and seamless migration paths. These allow service providers to cost-effectively scale current monitoring and test solutions all the way from individual locations to entire networks.

Today, one out of every four solutions in the wireless network monitoring market come from Anritsu. Pardon us for bragging, but clearly, we are doing something right. You'll find the full story at www.anritsu.com.

"With its flexible design and ability to leverage existing product iterations in newer generation products, Anritsu has designed for its customers and itself a 'win-win' strategy"

- Frost & Sullivan, 2005

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