



IP INFRASTRUCTURE FOR MOBILE OPERATORS

FROM HANDSETS TO THE INTERNET
AND EVERYTHING IN BETWEEN



DESIGNED
VERIFIED
DEPLOYED

ericsson.com



Today we are seeing the emergence of a networked society. By 2020, we predict that over 50 billion intelligent devices will be connected. Information will be exchanged instantly and every customer experience will be personalized.

Given the rapid technological advances in mobile telecommunications, our vision of a massively connected, “always on” world may happen even sooner than forecasted. It seems unfathomable that, in less than a decade, mobile data rates have increased over 7000 times. The initial GPRS speeds of 14.4kbps have sky rocketed to current LTE speeds of over 100Mbps. For mobile service providers that can keep up, these changes bring countless revenue opportunities, as well as many operational challenges.



YOUR CHALLENGES AS A MOBILE SERVICE PROVIDER

Verified Solutions and Network Expertise

The race to a networked society challenges traditional business models and is forcing many service providers to innovate constantly in order to remain competitive. As time-to-market for new services becomes critical to increasing revenue generation, operators are under pressure to quickly upgrade networks.

Without the luxury of time, service providers need equipment vendors that can provide proven, verified IP infrastructure solutions that integrate network components and deliver features or applications in the shortest timeframe. Furthermore, with technology evolving at such a rapid pace, finding highly skilled product experts is challenging. Many providers now need to rely on outside vendors to handle technical functions like network planning, design, rollout and maintenance.

Cost Effective Network Evolution

Another reality of this rapid evolution is the inevitability that multiple generations of mobile technologies will need to co-exist. In a world where CAPEX conservation and OPEX reduction is imperative, there is increasing pressure on vendors to guarantee network extensibility to accommodate future technologies.

Operators require a network that is both future proof and backward compatible to avoid costly forklift upgrades and the expense of continuously retraining personnel.

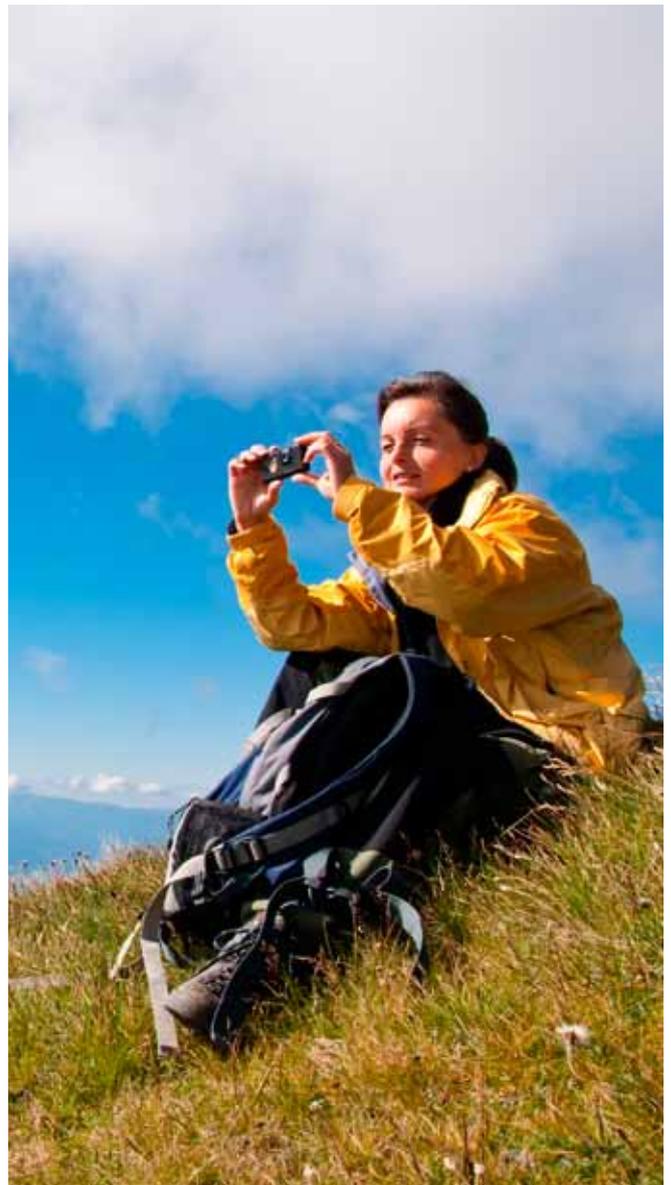
Optimal Design for the Transport Network

The optimal mobile transport network design needs to provide an efficient, traffic aware transport capabilities all the way from the IP RAN to the mobile core, through the mobile backhaul and the packet backbone. However, scaling the mobile backhaul network is a significant challenge. With increasing user access speeds, a transport network that originates at the radio base station and terminates at the BSC or RNC can become a critical bottleneck and denigrate the user experience.

THE KEY TO USER
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To arrive at an optimal transport network design, service providers need to focus on two segments of a backhaul network. The cell site access section of the RAN backhaul (LRAN) and the high radio access network, which is responsible for collecting, aggregating and concentrating traffic from the LRAN. This part of the network is commonly based on an optical fiber networking infrastructure. Currently, a significant number of existing LRANs are designed to backhaul voice and data traffic with a typical capacity of 6-8 E1/T1s. However, with the explosion in data services, the type and volume of traffic has radically changed, leaving many service providers looking for economical and scalable options to a situation that offers no easy answers.

Here's a paradoxical example. Even though fiber link technology may be a better way to future proof backhaul, today over 50% of the RBS sites worldwide are connected using microwave radios. Microwave is a proven solution that is fast and easy to deploy. In contrast, laying out fiber to thousands of high data RBS sites, over a vast geographical area, is slow and capital intensive. In the end, it may make more sense to make the best use of existing microwave infrastructure to backhaul increasing packet traffic from base stations.



Reduce Subscriber Churn

The core objective of most business strategies is to reduce user churn and increase ARPU. Since subscribers have many choices, the key to user retention has been providing consistently superior and personalized services. Offering a high quality of experience (QoE) requires a mobile transport network that is designed to scale with evolving technologies and increasing user traffic. Service providers also need to ensure fair usage of the network and retain the ability to charge higher prices for premium services that guarantee service levels and reliability.

ERICSSON MOBILE INFRASTRUCTURE SOLUTIONS – A COMPLETE PORTFOLIO

Proven full network architecture solutions and unparalleled expertise

Ericsson has been the leader in mobile networks and a trusted technology partner for many decades. This gives us a unique perspective on the challenges encountered during periods of rapid technological changes. These insights guide our portfolio, product roadmaps, and strategy, which strengthen our leadership in RAN, mobile core and end-to-end IP infrastructure.

With such a broad portfolio, it is essential that our products are part of an integrated solution that can be quickly deployed, monetized and customized. That is why we adopt a lifecycle management process to design, verify, document and support every solution. In most cases, solutions need operator specific customization as well. As a result, we have made a considerable investment in test facilities, where we verify the entire suite of Ericsson and partner products as an integrated solution within the full network architecture. In addition, we also create virtual solution labs by connecting individual Ericsson product labs around the world.



Our comprehensive product portfolio includes multiple generations of radio access technologies, backhaul solutions using microwave, copper and fiber, as well as complete intra-site and inter-site connectivity solutions and mobile core networks. This allows us to test any combination of products under real world network scenarios. Although the implementation of an all Ericsson portfolio offers a synergetic advantage, it does not preclude our customers from using partner, or even competitive products, in various network segments.

ERICSSON HAS ONE OF THE INDUSTRY'S LARGEST PROFESSIONAL SERVICES TEAMS

Converged Architecture for All Generations of Mobile Technologies

As a leader in technology innovation, we are able to design products that accommodate evolving network architectures. Key objectives of our product strategy are to ensure the highest infrastructure reuse and help maximize the value of every customer's CAPEX investments. For example, Ericsson's Evolved Packet Core solution provides a common platform that can be used for multiple generations and multiple standards of radio access (GSM/WCDMA/HSPA/LTE/CDMA) as well as other network access types including fixed broadband. Advanced features like SGSN and MME pooling and triple access capabilities (GSM/WCDMA/LTE) help increase the resilience of a multi-generation mobile network, while reducing the total CAPEX required for the introduction of new services.

Efficient Transport Network Design for Mobile Backhaul

Ericsson is the leader in microwave transport with over two million Ericsson MINI-LINK systems deployed worldwide. We were the first vendor to demonstrate 2.5Gbps and 5Gbps data rates over microwave and support a 1Gbps data rate using MIMO on a 28 MHz channel. Our microwave transport experience, our leadership position in radio access technology, and depth of network service expertise also helps us develop features in individual product portfolios that drive synergies in the larger solution.

For example, the Ericsson MINI-LINK product line supports eight distinct queues for sustaining the differentiated treatment of various types of backhaul traffic. This allows a common quality of service (QoS) profile to be enforced from radio access to the mobile core. The ability to standardize QoS markings and policies, in conjunction with a service aware policy control mechanism, helps service providers deliver revenue generating, differentiated services. Advanced features, like hitless adaptive modulation, ensure that packet-based synchronization mechanisms operate at the highest level of precision.

Providing an amazing user experience

With a multitude of service choices, user retention is very closely tied to the quality of experience (QoE). Ericsson's holistic policy enforcement ensures that all subscribers enjoy appropriate traffic handling from the base station to the mobile core. That enables operators to offer premium, higher revenue generating services with assured QoE and entices subscribers to move away from traditional "all you can eat" service models. World-class path, link and

node redundancy across the transport domain also helps maintain telecom grade reliability for operators moving to a packet network.

SUMMARY

As we march toward an increasingly networked society, operators need to transform their networks to handle massive scale and adopt an operational model that supports the rapid roll out of new services. Our pre-tested, integrated, end-to-end IP infrastructure solutions and expertise help make this transformation as seamless and efficient as possible.

Currently, we support networks that serve more than two billion people and manage over 750 million subscribers worldwide. Our Professional Services team of over 40,000 professionals is among the largest in the industry. These network service professionals have spent hundreds of thousands of hours working on mobile network design, planning, roll out and maintenance. When you're ready to navigate the world of rapid technology evolution, Ericsson is the ideal partner to help you monetize your most strategic asset – your network.



Ericsson is shaping the future of Mobile and Broadband Internet communications through its continuous technology leadership.

Providing innovative solutions in more than 140 countries, Ericsson is helping to create the most powerful communication companies in the world.

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