

st-series

Multimedia Core Platforms



As a mobile operator, you've deployed a mobile broadband network that provides subscribers with Internet access, messaging, streaming video, audio downloads, and other data services.

The result is significant gains in data average revenue per user (ARPU). However, this is just the beginning. More advanced, interactive multimedia services, such as location-based applications, Video-on-Demand, social networking, and IPTV, will further increase usage of multimedia services and substantially increase demand on your network, as well as profit potential.

In order to deliver a superior subscriber experience, you must build a high-capacity, mobile broadband core network capable of significantly improving control of individual subscriber sessions. This network must handle bandwidth intensive,

real-time multimedia services, such as voice, video, and TV — all the while preparing to migrate to 4G technologies.

Starent Networks is a leading global developer of multimedia core equipment for the world's most demanding mobile broadband networks. A true mobile broadband core network starts with the system intelligence and high performance of Starent Networks' ST-Series multimedia core platforms.



Mobile operators need to be concerned about the core. Starent's ST-Series multimedia core platforms are purpose-built for the high demand mobile core network environment and the handling of today's various multimedia services. The ST-Series platforms are deployed in many of the world's most prominent mobile operators' networks, operators that expect the most of their core network.

The ST-Series platforms are ideally suited for mobile broadband networks that require market leading performance, intelligence to shape the subscriber experience, superior network architecture flexibility, and robust availability.

ST-Series Architecture

The ST-Series multimedia core platforms incorporate powerful technology with innovative design. They feature a distributed architecture, high-performance capabilities, service assurance, and subscriber awareness that set them apart from the competition.

The distributed architecture utilizes a blend of high performance processing, significant memory, and powerful switch fabric to more intelligently and reliably handle mobile sessions. Call control and packet forwarding paths are separated on different control and data switch fabrics, reducing the number of traffic flow inefficiencies, which diminishes latency and ensures faster call setup time and handoffs.

With the distributed architecture, all tasks or services can be allocated across the entire platform. This unique approach allows you to deploy more efficient mobile networks that can handle a greater number of concurrent calls, optimize resource usage, and deliver enhanced services, while also providing easy scalability.

Network Flexibility

Enabled by the powerful distributed architecture, all of the ST-Series platforms are access independent and can be seamlessly deployed in various access networks with the following functions:

UMTS/HSPA

- Gateway GPRS Support Node (GGSN)
- Serving GPRS Support Node (SGSN)

CDMA/HRPD/eHRPD

- Packet Data Serving Node (PDSN)
- Foreign Agent (FA)
- Home Agent (HA)
- HRPD Serving Data Gateway (HSGW)

LTE Evolved Packet Core (EPC)

- Mobility Management Entity (MME)
- Serving Gateway (SGW)
- PDN Gateway (PGW)
- Evolved Packet Data Gateway (ePDG)

WiMAX

- Access Service Network (ASN) Gateway
- Home Agent (HA)

WiFi

- Security Gateway
- Call Session Control Function (CSCF)

Femtocell

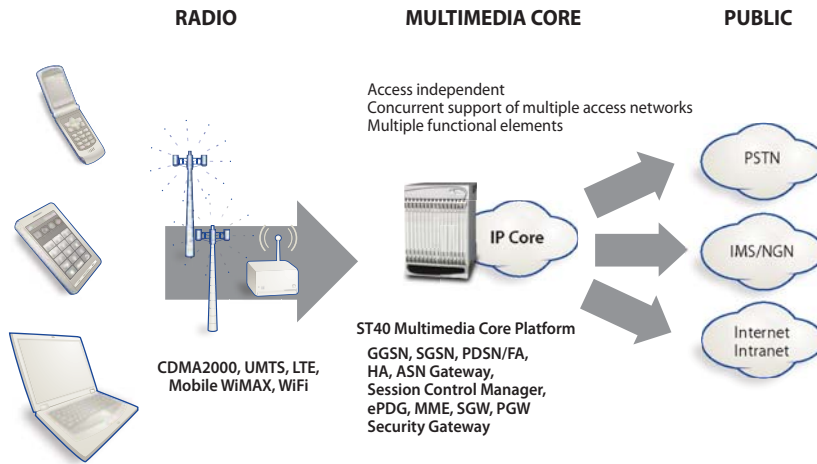
- Security Gateway
- Home Node B Gateway (HNB-GW)
- Call Session Control Function (CSCF)

Since the network functions required for any of these access technologies can be combined in a single platform through the Starent architecture, you can realize significant operational savings and a simplified network. The flexibility of the platform further enables you to prepare for next generation technologies, such as LTE. As a result, your 3G investment is secure when you migrate to 4G.

Redundancy and Availability

The ST-Series platforms employ full hardware and software redundancy, as well as high availability software techniques.

The platforms are able to anticipate faults and provide quick, non-session disrupting recovery to maximize network uptime, maintain user sessions, retain billing information, as well as ensure a high-quality experience.



Starent's ST40 multimedia core platform provides multi-service, multi-access capabilities for the next generation wireless broadband multimedia core network.

The self-healing attributes include:

- Session recovery
- Fault containment
- State replication
- Task checkpoint and migration
- M:N or 1:1 redundancy for all hardware elements
- Dynamic hardware removal and additions — hot-swappability
- Inter-chassis session recovery or geographic redundancy between multiple platforms

In-line Services

The integrated intelligence enables Starent's unique In-line Services, which allow you to achieve a higher degree of optimization, lower operating expenditures, and higher levels of service assurance through a variety of advanced applications, such as:

- Enhanced content charging
- Stateful firewall protection
- Application detection and optimization
- Content filtering
- Network-based traffic optimization

In-line Services at the network edge increase network scalability through simple distributed service deployment, reduce latency by streamlining the network, protect subscriber sessions through deployment on a single, carrier-class platform, and reduce the Total Cost of Ownership through integration.

The ST-Series employs the latest encryption and security software and firmware for the vital protection of subscriber sessions. Various authentication protocols are used to secure network access to valid subscribers and IPSec encryption and termination provides a secure and private session.

Intelligence at Work

The ST-Series platforms have the ability to recognize different traffic flows, which allows them to shape and manage traffic, while interacting with applications to a very fine degree. The platforms do this through session intelligence that utilizes deep packet inspection (DPI) technology, service steering, and network-based traffic optimization to dynamically monitor and control sessions on a per-subscriber/per-flow basis.

The platform's interaction with and understanding of key elements within the multimedia call – devices, applications, transport mechanisms, location, session-state, policies – and assistance in the service creation process occurs by:

- Providing a greater degree of information granularity and flexibility for billing, network planning, and usage trend analysis
- Sharing information with external application servers that perform value-added processing
- Exploiting user-specific attributes to launch unique applications on a per-subscriber basis
- Extending mobility management information to non-mobility aware applications
- Enabling policy, charging, and Quality of Service (QoS) features

Enhanced Operating System and Management

The ST-Series multimedia core platforms use Starent's StarOS™ operating system, a customized, real-time version of Linux® that provides a robust and highly flexible operating environment.

The operating system is designed to distribute and manage sessions across the entire platform through:

- Application hosting capabilities
- Modular distributed processing
- High-availability features
- Robust development environment
- Context support allowing multiple logical systems to exist in one platform

The ST-series can be managed locally and remotely through the following:

- Command Line Interface (CLI) supporting telnet, SSH, and local login through a console port
- Web management using an advanced CORBA-based application
- SNMP support for event notification



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