Flexent® IP Multimedia Subsystem for UMTS

The Flexent® IP Multimedia Subsystem (IMS) is Lucent's advanced switching solution for the Universal Mobile Telecommunications System (UMTS)



Benefits

- Acts as a 3G-MSC for circuit switched voice calls for 3GPP Release 99
- Benefits from distributed architecture at launch
- Gives maximum hardware investment protection by enabling seamless migration from 3GPP Release 99 or Release 4 to Release 5 and beyond

Lucent Technologies
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The Flexent® IP Multimedia Subsystem for UMTS

In order to be successful in UMTS, the fast introduction of new revenue streams is necessary. At the same time reducing the long term risks is paramount. With the Flexent® IMS, Lucent offers a robust and flexible UMTS network evolution solution that provides a sound investment for the future. It will also allow maximum reuse of investment, as all parts of the solution will be able to support the 3GPP evolution stages, from Release 99, Release 4 to Release 5 and beyond.

The Lucent solution comprises a Feature Server, Wireless Access Gateway (WAG), Trunk Access Gateway (TAG) and the enhanced Media Resource Server (eMRS) which provides resources for announcements, tones and conference bridges etc. These elements are linked by a local IP network.

The Feature Server is at the heart of the Flexent® IMS and takes care of the following:

- Performs mobility management and call processing
- Terminates signaling protocols
- Controls the Wireless Access Gateways and Trunk Access Gateways
- Provides information for OAM&P and billing functions

The Flexent® IMS solution is based upon the Lucent Softswitch – an already proven solution in the wireline environment. It is a highly scalable, carrier grade platform for convergent multimedia networks that:

- Deploys on commercially available computing platforms, reducing spares holding costs
- Is cost-effective, open and programmable and makes extensive use of standard open interfaces
- Offers efficient service integration for rapid new revenue generation

The programmability of the Flexent® IMS solution is of great importance because it:

- Enables efficient adaptation of the switch configuration to your signalling and call handling requirements
- Facilitates the rapid introduction of new revenue generating services via industry standard application programming interfaces (APIs)

The Designed Evolution of Flexent® IMS

Lucent provides a phased approach for evolving a circuit switched core network element into a multimedia-driven distributed switching solution.

UMTS Release 99

Although the Flexent® IMS supports 3GPP Release 4 distributed architecture at UMTS network launch, Release 99 is available in the case of collated IMS network elements. The full benefits of distributed architecture can be realized at a later stage.

UMTS Release 4

Bearer-independent, circuit switched networking gives increased switching capacity and separation of call control and mobility management from the network transport.

The WAG and TAG become Media Gateways that support the transcoding of voice traffic to and from the radio network. The TAG is located at the edge of the UMTS core network, interconnecting with PSTN and other cellular networks. Capacity growth is managed economically by locating new media gateways where they are needed most.

UMTS Release 5

At Release 5, voice and data services are integrated into one core network. A software only upgrade transforms the IMS Feature Server into an IP Multimedia Server. This introduces new signaling protocols that enable call and session control for multimedia services, including Voice over IP. Open programmability supports the rapid introduction of new revenue generating services.

Benefits

Investment protection

The Flexent® IMS migrates easily from R4 - platform distribution - to R5. R5 supports the 'all-IP' multimedia subsystem, so maximizing the economic life of the investment. Additionally, with the GSM A-interface, you can support both 2G and 3G radio access from a common core network element.

Highly scalable

You grow Flexent® IMS capacity incrementally and efficiently by varying port densities and adding modular components. This minimizes start-up costs and maximizes the value per port employed. The capacity will scale to 1 million.

Risk reduction

Upgrades are software only, so since the upgrade path is a fundamental aspect of the design, introducing Flexent® IMS at launch lowers the risk of disruption. You could introduce an IP Multimedia solution later on but then, with higher subscriber numbers actively using the network, the potential costs of disruption, subscriber churn and revenue loss, would be far greater.

Reliability

The Flexent® IMS provides carrier class reliability. All interface cards have N+1 redundancy, with 1+1 redundancy on the call processors, SS7 and power cards. Hot plug-in and automatic switch-over functions are supported in key areas.

Rapid service deployment

On the Feature Server's programmable but secure Flexent® IMS platform you can create high value features and introduce new and exiting revenue generating services swiftly without compromising system reliability or performance.

Seamless interoperability

Network convergence makes it increasingly important for switch platforms to support varying protocols and interfaces. Lucent's Flexent® IMS supports a range of protocols including ISUP, ATM, IP and H248.

The softswitch translates industry standard signalling protocols into a generic call signaling format. This simplifies the addition of new protocols and allows you to deliver seamless interoperability across domains such as UMTS, GSM, PSTN and Internet telephony. It also enables inter working between vendor gateways, providing opportunities for you to expand your market reach.



Why Lucent for an IMS solution?

Reducing the risks of UMTS deployment

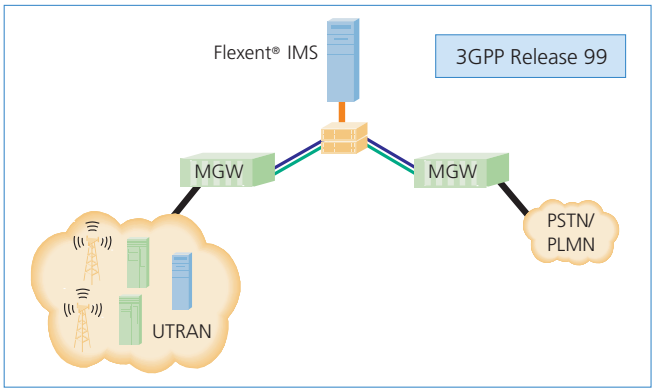
Drawing on our experience in multi-service switching and routing and the complex CDMA radio network environments we are well able to deliver reliable solutions to your future network capacity demands.

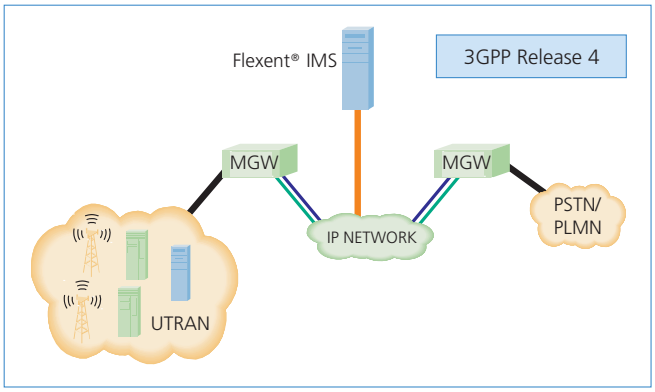
Reducing time to revenue

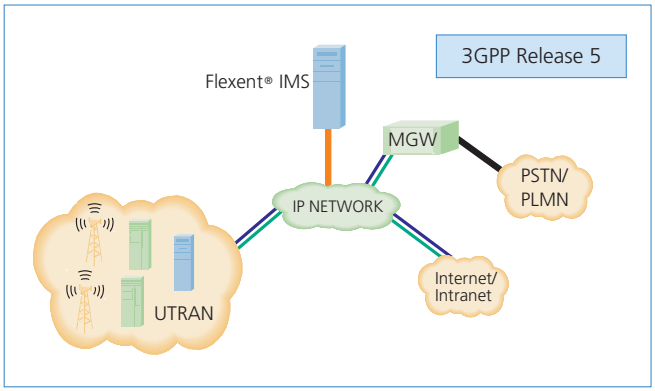
Our experience in multi-service switching and routing and the complex CDMA radio network environments allows us to offer solutions at the earliest opportunity, reducing your time to revenue.

Lowering network costs

Our strategy for using open computing platforms and common developments across a range of UMTS network elements reduces operational costs and opens the migration path from 2G to 3G and to an all-IP architecture.







Key Benefits of the Flexent® IP Multimedia Subsystem

- Supports teleservices, bearer and supplementary services by Release 99 standards at launch and will support subsequent 3GPP functionality levels
- Smooth migration to 3GPP Release 5 standards and at the same time benefit of the full reuse of hardware
- Carrier class reliability
- Scalable capacity
- Open interfaces, including Iu over STM-1, RANAP, ATM/AAL2 to UTRAN, MAP, SS7, ISUP
- Standards-based interoperability
- Intelligent Network supported through CAMEL and INAP

Main IMS Feature Server Specifications

Dimensions (H x W x D) Cabinet	2052 x 612 x 739mm (80.8 x 24 x 29 in)
Min. Weight (approx.)	300kg per cabinet (660 lb)
Average power consumption (approx., dependant upon system configuration)	4.0 kW per cabinet (min. 6 cabinets)
Operating temperature	5 °C to 40 °C (41°F to 104°F)
Operating humidity	5% to 85%
Voltage range	-40 to -60 Volts (DC)
Subscriber Capacity	360,000 rising to 1,000,000
Support for OAM&P agent functions	

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Lucent is a world-class supplier of mobility solutions. Innovation is at the heart of our business. Our Centers of Excellence and the global facilities of Bell Labs, are shaping the way our world communicates. We offer unchallenged market leadership in CDMA radio access, the underlying technology for UMTS, ATM backbone networking technology, circuit and packet switching as well as the expertise to integrate and deploy complex networks. Call Lucent for complete end-to-end mobility solutions.

Visit our web site at www.lucent.com

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