The market for IMS and the consequences for ENUM

George D Salisbury
Managing Consultant
Frankfurt, April 2008
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<th>Telco &amp; Digital Media</th>
<th>Enterprise &amp; Services</th>
<th>Public Sector</th>
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<td>Digital Media &amp; Online Services</td>
<td>Automotive &amp; Manufacturing</td>
<td>Development Banks</td>
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<td>Fixed Network Operators</td>
<td>Financial Services</td>
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<td>Investors</td>
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<td>VNOs &amp; Service Providers</td>
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<td>Wireless &amp; Mobile Operators</td>
<td>Utilities</td>
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![Image](image_url)
The market for IMS and the consequences for ENUM

A provocative view on IMS and ENUM

IMS and ENUM will probably not achieve the success that they are technically capable of.

<table>
<thead>
<tr>
<th>IMS and ENUM</th>
<th>George D. Salisbury</th>
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</thead>
<tbody>
<tr>
<td>IMS is primarily a network operator view of service delivery.</td>
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<tr>
<td>The IMS concept was laid down 10 years ago when technology and business models were different to those of today.</td>
<td></td>
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<tr>
<td>Network operators need Number Portability support far more than they need Public ENUM.</td>
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</table>
| Detecon International GmbH  
Head of Technology Strategy Group |
| 19 years in product development for international vendors. |
| 5 years in business and strategy development for an international voice/IP/data service provider. |
| 4 years in telecommunications consultancy. |
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Driver for NGN

The overwhelming reason to change from legacy to NGN technology is operational cost reduction, it is not driven by new services!

The only reason for change is:

- to put the business in a **better** position than it would be in if the change were not implemented

There are two definitions of better:

- New revenue streams.
- Lower cost base for existing revenue streams.

Drivers

- **1997**: 1 Giga Floating Operations per second (GFLOPs) cost about 30,000 US $.
- **Today**: an off-the-shelf PC provides about 10 GFLOPs for about 300 US $.
- Price decreases for fiber, IP and Ethernet are also impressive.

Developments in telecommunications nodes

- PSTN: ~ 80 exchanges per million inhabitants.
- ISDN: ~ 20 exchanges per million inhabitants.
- MPLS core: ~ 2 sites per million inhabitants (with MPLS LE and LS routers).
- NGN: ~ 1 voice “site” per 4 million inhabitants. (with call control capabilities for PSTN services).

New entry to the market is cheaper!
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NGN, what is it

Network operators distinguish very clearly between an NGN and the Internet. The Internet is *best-effort* constrained, an NGN is not.

**NGN, a definition:**

The use of a common Transport and Control infrastructure to deliver digital information, between a source and one or more destinations, to one of a set of pre-defined quality of services.

**Characteristics:**

- Multi-service capability: voice, IP, TV, data.
- Separation of service from transport.
- Packet based transport.
- Potential for operational expenditure reduction.

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Internet ≠ NGN

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**Diagram:**

- **NGN**
  - Service control platforms
  - Packet based transport network
  - Access networks
  - Inter-working Gateways
  - Other networks

- **Internet ≠ NGN**

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**Access networks**

**Service control platforms**

**Packet based transport network**

**Inter-working Gateways**

**Other networks**
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The network operators hope...

Network operators want to use IMS to capitalize on possession of a network.

Getting the information technology and transport technology to interact with one another to create a business advantage.

Leveraging on:

- The knowledge that they have.
- The capabilities that they have.

Ideally the business advantage uses transport capabilities that are not readily accessible to third-party service providers.
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IMS architecture

IMS can be viewed as a highly standardized architecture for NGN

**IMS: Pros**

- Reduced cost of system integration.
- Opportunity for carrier to swap-in swap-out vendors.

**IMS: Cons**

- A standard does **not imply** existence of an implementation.
- Standardization roadmap might not reflect a given users time-to-market.
- Reduced opportunity for feature/service discrimination.

Graphics source: ETSI
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Architectural purity versus pragmatic engineering

Highly standardized architecture does not necessarily mean open.

<table>
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<tr>
<th>Goal versus reality</th>
<th>Cynical (?) observation</th>
</tr>
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<tbody>
<tr>
<td><strong>To minimize the cost of achieving inter-operability across an interface.</strong></td>
<td>Expect to see more IMS functionality being grouped on “monolithic” processing platforms to:</td>
</tr>
<tr>
<td>The more exposed interfaces that a system has, the more likely it is that some-one will push for standardization of that interface.</td>
<td>- Take advantage of the continuing advancements in processing power and network interface speeds.</td>
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<tr>
<td><strong>But:</strong> Some vendors are grouping IMS functions on to a common platform thus reducing interface exposure and:</td>
<td>- Avoid network based communication between components.</td>
</tr>
<tr>
<td>- better use available processing power.</td>
<td>- Inhibit vendor competition.</td>
</tr>
<tr>
<td>- short-cuts communication between functions (i.e. avoid the full SIP stack).</td>
<td></td>
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<tr>
<td>e.g. I/P/S CSCF on a common processing platform (i.e. no external messages needed between I/P/S).</td>
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Different flavors of voice service

There are three types of voice telecommunication services.

<table>
<thead>
<tr>
<th>Voice services</th>
<th>NGN based</th>
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<tbody>
<tr>
<td>PSTN Substitution</td>
<td>Majority of subscribers will be connected via legacy User Network Interfaces to access devices that are located at the network end of the access circuit. (PSTN Substitution)</td>
</tr>
<tr>
<td>PSTN Emulation</td>
<td>Security considerations place a firewall between the NGN and the Internet.</td>
</tr>
<tr>
<td>Voice over the Internet</td>
<td>IP addresses of the NGN infrastructure are not reachable from the Internet.</td>
</tr>
<tr>
<td>Access device</td>
<td>Where the NGN and the Internet share infrastructure they are kept logically separate.</td>
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<tr>
<td>DSLAM</td>
<td></td>
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<td>Soft phone</td>
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Public ENUM – example

Suppliers of public communications services do not need Public ENUM except to identify the owning service provider i.e. nothing more than Number Portability.

Sub-A and Sub-B both subscribe to services from the service providers SP1 and SP2 respectively.

Sub-A wants to call Sub-B:
- Sub-A can not bypass SP1 and go straight to SP2 without a prior contract (AAA problems).
- SP1 can not bypass SP2 to get to Sub-B because of:
  - Possibility legal interception.
  - Termination services that Sub-B may have from SP2.

Note: PSTN substitution service is even more unfriendly to Public ENUM.
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**Summary**

IMS and Public ENUM face massive hurdles.

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<tr>
<td>- Tomorrows technology will make today’s obsolete.</td>
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<td>- Today’s architectures are inappropriate for tomorrows technology.</td>
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<tr>
<td>- IMS was laid down 10 years ago.</td>
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<td>- Today’s technology has already bypassed IMS architectural drivers.</td>
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<td>- Public ENUM has issues with supporting pay-for-use services.</td>
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<tr>
<td>- ENUM supported sub-direct-to-sub communications bypasses legal interception.</td>
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<tr>
<td>- Except as a number portability substitute, telecommunications service providers have no reason to like Public ENUM.</td>
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My thanks for your time and attention.

For additional details please contact your Detecon representative or

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The future's looking good
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Enlargement of graphic used in presentation

TISPAN and IMS

- A-BGF: Access Border Gateway Function
- T-MGF: Trunk Media Gateway Function
- IBCF: Interconnection Border Control Function
- I-BGF: Interconnection Border Gateway Function
- IWF: Inter-Working Function
- SGF: Signaling Gateway Function

- SIP
- H.248
- DIAMETER

- NGN specific impacted

Network Attachment Subsystem

Core IMS

Resource and Admission Control Subsystem

IP Transport (Access and Core)

Other IP Networks

Charging Functions

AS

SLF

IBCF

IWF

PSTN/ISDN

P-CSCF

MGCF

MRFC

MRFP

A-BGF

I-BGF

T-MGF
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Enlargement of graphic used in presentation

TISPAN and IMS

Source: ETSI
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The End