Technical Specification Group Services and System Aspects   *TSGS#25(04)0496*
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Title:	**IMS NGN Standards Process**
Source:	Randolph Wohlert, SBC Communications
Contact:	Randolph Wohlert, wohlert@labs.sbc.com
	Peter Adams, peter.m.adams@bt.com
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Introduction

As referenced in S1-040722 ("3GPP-TISPAN potential collaboration and related integration of requirement"), a key standardization initiative is underway in various standards bodies to specify interfaces and functionality for Next Generation Networks (NGNs). Such networks are essentially viewed as providing packet based multimedia services over a diversity of access methods, including both wireless and wireline interfaces. The 3GPP IP Multimedia Subsystem (IMS) specifications are being considered as the basis for developing NGN specifications.

Within the ITU-T a Next Generation Network Focus Group has been formed with multiple subgroups addressing work in various areas.

ATIS formed groups to focus on the development of key industry standards for such topics as VoIP, Security, etc., and has formed an NGN Focus Group to address NGN issues.

Within ETSI, NGN issues are being addressed primarily by the TISPAN group. Currently it seems that TISPAN intends to gain acceptance of proposed 3GPP IMS NGN specification enhancements by directly proposing changes in the 3GPP architecture and protocol working groups (e.g. SA2, CN1). It's unclear how the enhancements of other regional standards organizations will be incorporated into 3GPP IMS specifications.

What process will be followed to implement changes to 3GPP IMS specifications for NGN? This paper considers possible approaches to NGN IMS Standardization and their ramifications. It suggests that the most effective way forward may be to follow a top down requirements, architecture, and protocol specification development approach, driven by globally agreed upon service and system requirements.

Approach #1: Direct Architecture & Protocol Changes in 3GPP

One way forward to IMS NGN Standardization is for interested companies and organizations to propose needed specification changes in the groups responsible for the various specifications. For example, ETSI TISPAN could develop consensus regarding needed IMS changes and (possibly through member companies) propose specification changes in the responsible architecture and protocol 3GPP working groups (e.g. SA2, CN1). Other parties could also propose changes in the same manner.

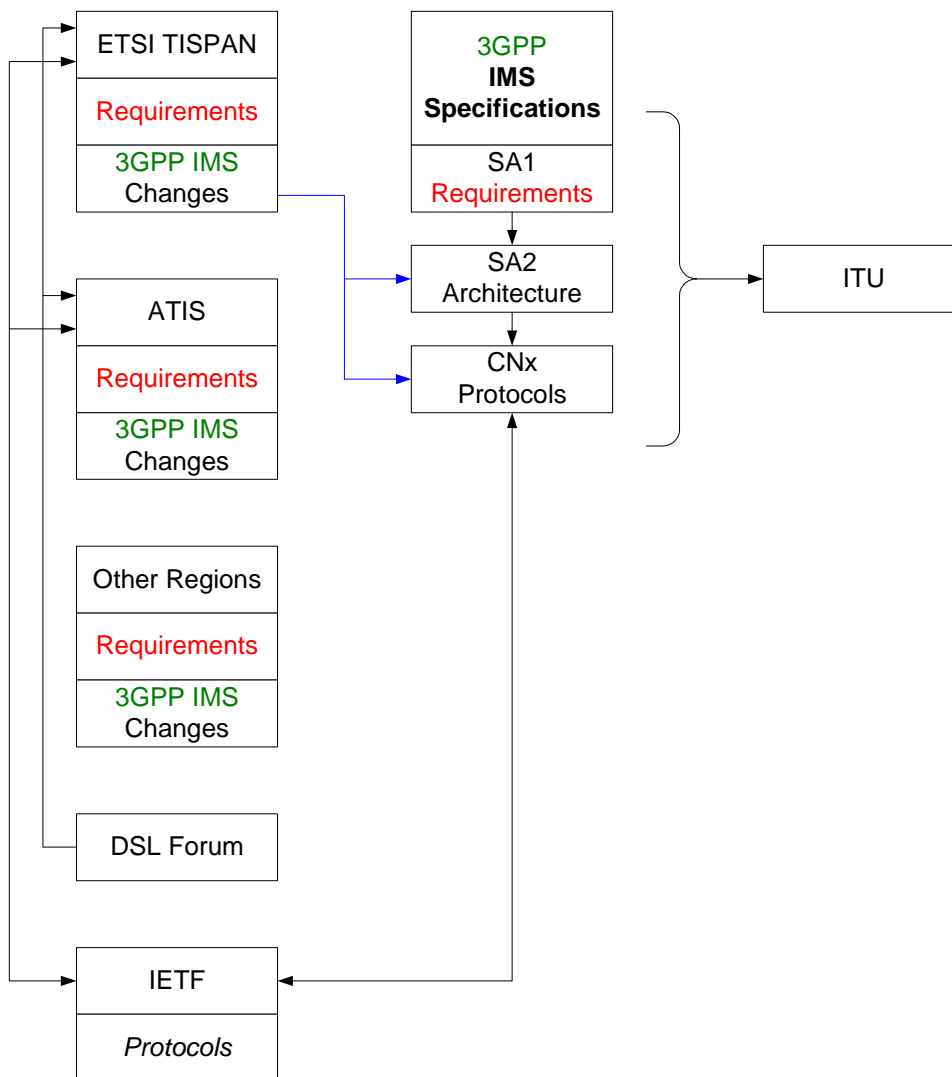Figure 1 provides a high level overview of this approach.

Figure 1: Direct IMS NGN Architecture & Protocol Changes Example

However, historically it has been believed that the most efficient approach to the development of consistent specifications is to follow a top down requirements (stage 1) -> architecture (stage 2) -> protocol specifications (stage 3) approach. With this approach, a consistent view on requirements (including services and end-to-end systems engineering aspects) establishes a foundation for making decisions with respect to architecture and protocols.

Approach #1 doesn't follow this philosophy in that a top down approach isn't followed within 3GPP. As a result, progress may be hindered by disputes regarding service and system requirements for proposed enhancements. It may be possible to resolve such disputes when they arise by involving SA1 to consider requirements. However, it's unlikely this process will be efficient, and specification development may be delayed.

Another possible problem is that different working groups may have different views on the requirements. Requirements perspectives may even be consistent within a given group, but inconsistent across groups without an overarching specification to provide consistency. The result could be the specification of inconsistent or incompatible solutions by different groups, hindering interworking and end-to-end interoperability.

Another potential problem could be the development of incomplete solutions from an end to end systems engineering perspective, since there is no cohesive overall perspective, especially from a services delivery perspective (e.g. there may be gaps in the standards).

Additionally it seems that this approach doesn't provide a mechanism for global coordination with regional standards organizations. 3GPP IMS NGN specifications should be global in scope to realize global economies of scale and international interworking. As such, all regions actively engaged in NGN standardization activities should be afforded equal opportunity to represent their views in the development of specifications, and ensure regional requirements are accommodated. Failure to establish equal opportunity global engagement may result in industry fragmentation, pursuit of different solutions in different regions, and global interoperability difficulty.

Approach #2: Variants of IMS Developed Outside of 3GPP

Another possibility is that NGN standards organizations each develop their own versions of NGN standards based on IMS (e.g. Release 6) specifications, outside of 3GPP.

With this approach, it's possible that different, perhaps incompatible, variants of IMS may be developed in various regional and global standards bodies (e.g. ETSI, ATIS, ITU, 3GPP). The result may be industry fragmentation and impeded international interoperability.

Approach #3: Globally Unified Requirements Driven Approach

Another way forward would be to reach clear agreement to develop a common single service and systems requirements specification that provides a unifying basis for architecture and protocol work. This would facilitate the traditional top down approach for the development of specifications from requirements to architecture to protocols.

The requirements specification should be developed by a global standards organization that provides equal opportunity regional participation. Note that as global organizations, either 3GPP or ITU-T may be suitable.

If 3GPP IMS specifications are to be the basis for NGN standards, and work is to be done in 3GPP on this topic, then it might be most appropriate to establish a 3GPP requirements specification. **3GPP could serve as the focal point for collecting global requirements, not necessarily be tasked with autonomously developing requirements.** Regional organizations could collectively contribute through their membership by providing appropriate representation in 3GPP.

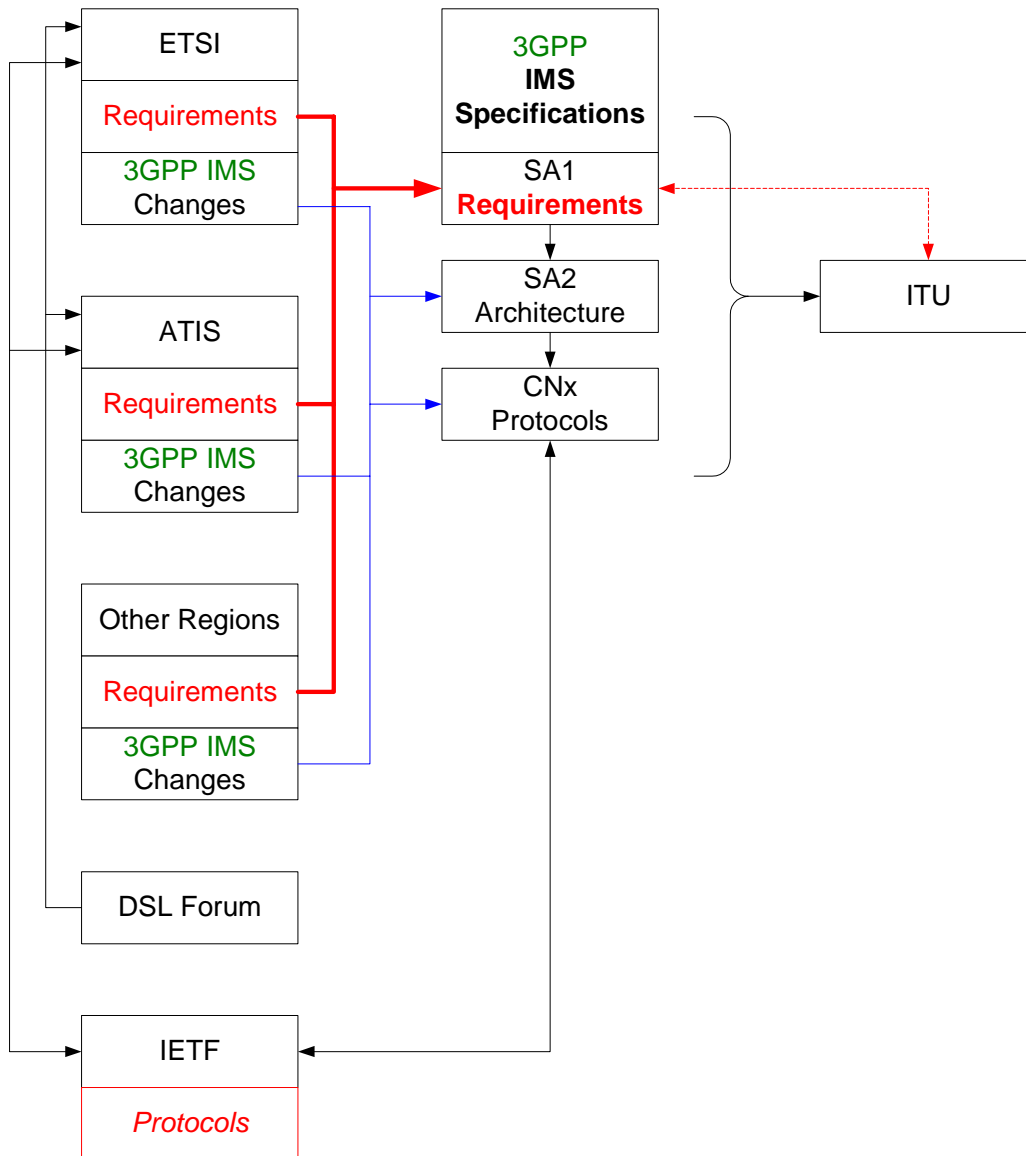The following figure provides a simple high level overview of this approach.

Figure 2: Globally Common Requirements Driven Approach

Conclusions

If 3GPP IMS NGN specifications are to serve as the basis for NGN standardization, then a clear understanding of the process for moving forward on this initiative is needed. Considerations should include:
- If a top down requirements, architecture, protocol approach should be pursued;
- If a single global requirements specification should guide changes in 3GPP,
    o where such a specification should be developed
- If changes (to architecture, protocols) should be made without agreed global requirements?

Concern exists that without 3GPP agreement on these issues, progress may be hindered, globally inconsistent or incompatible specifications may be developed, and solutions may be incomplete.

It is therefore proposed that agreement be reached on the following points:

1. That a top down requirements -> architecture -> protocol approach to IMS NGN standardization be followed

2. That a single globally common services and system requirements specification be developed based on input from regional and international organizations that provides a unifying basis for architecture and protocol work

3. That a collective services and system requirements specification be developed within 3GPP based on inputs from other organizations as well from within 3GPP

If it is agreed that a single globally common services and system requirements specification be developed within 3GPP, then a 3GPP Work Item Description (WID) should be agreed upon to initiate work on a requirements specification. A draft WID to accomplish this is available for consideration (see SP-040497).