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Harmonization and Convergence of IMT-2000 Systems

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Outline

- Industry Trends
- Core Network Harmonization
  - Benefits of Harmonization
  - Recent Workshop in Toronto
- Role of ITU-T SSG on "IMT-2000 and Beyond"
- Studies in Working Party 3/SSG
  - Interworking/Harmonization
  - Fixed/Mobile Convergence
- Concluding Remarks

Industry Trends

- Third-generation (3G) systems are evolving to provide enhanced capabilities to meet end-user needs.
- 3G core networks are migrating towards a common packet-switched architecture using IETF protocols.
- Service providers are moving towards support for an IP-based multimedia service concept.
- Convergence of fixed and wireless networks provides additional synergy.

Harmonization Objective

- Major objective of the Harmonization
  - The development of harmonized CN solution
    - Can facilitate cost-effective IMT-2000 network deployments based on the standardized open interfaces
    - Stimulate the commercial uptake of IMT-2000 services
    - Foster global roaming across all evolving IMT-2000 systems

- Harmonization of CN standards should give network operators the ability to deploy new services without unnecessary adverse impact on other common systems
  - This could be achieved by separation of transport, control and services

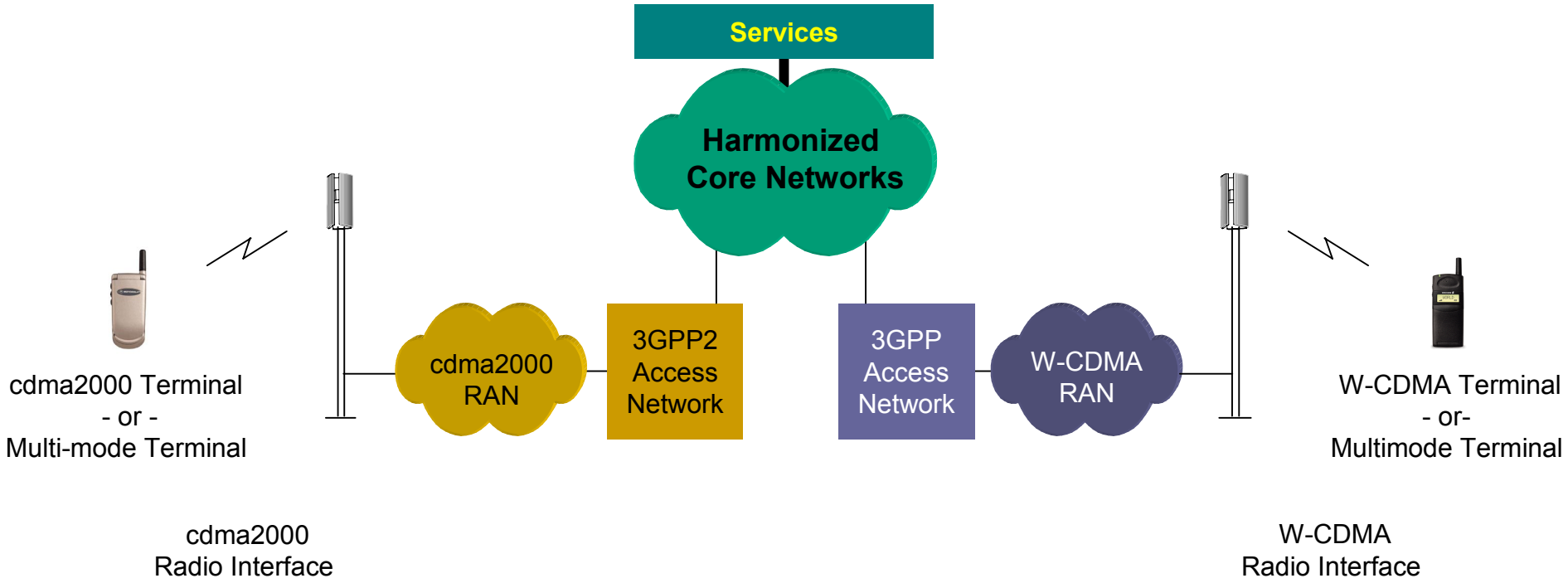
Drivers for Core Network Harmonization

- **Extended Service Opportunity**
  - Variety of networks are increasing in many operators along with the emergence of new technologies in RAN side: operators are suffering from the heterogeneity of the core networks since those limit the opportunity of service transparency, seamless roaming and common application
- **IP based Convergence Trend**
  - With the core network gradually migrating to Internet Protocol (IP) and packet-switching based, service convergence could generally become easier: even for the voice services in the long run
  - The direction of moving to support IP based multimedia service is already slated for both cdma2000 and W-CDMA operators: why not to go in line with it?
- **Promising Aspect of Access Transparency**
  - Increasing diversity and shortened lifetime of access technology (I.e., WLAN) give rise to the strong need of infrastructure sharing and access transparency

Harmonization Benefits

- Harmonization can bring benefits to users, vendors, and network operators
  - Benefits for Users:
    - Variety of Service
    - Reduced User cost
  - Benefits for Vendors:
    - Single and open architecture
  - Benefits for Network Operators:
    - Enable seamless roaming irrespective of radio access technologies
    - Facilitate service transparency
    - Enable common service and application development
- Early realization of emerging real-time IP multimedia service, in line with IP convergence trend of evolution:
  - Provide high commonality and feasibility that will accelerate deployment of IP multimedia services based on open service access platform

Harmonized IP Core Network



Concept of a common core network designed to ensure service transparency between evolving IMT-2000 systems and having an IP-based architecture

Medium-term Focus on Harmonization

- Operators are making efforts to convince suppliers of the benefits of harmonization (e.g., through OHG)
- Specifications forums are taking steps to encourage development of required new standards
- Standards bodies are working to achieve harmonization, convergence, and alignment of evolving standards
- Vendors of network equipment are creating enhanced product evolution solutions
- Manufacturers of handsets are evolving terminals to fully integrate with the target core network protocols
- Harmonization of core networks is key to the success of evolution in the medium-term timeframe

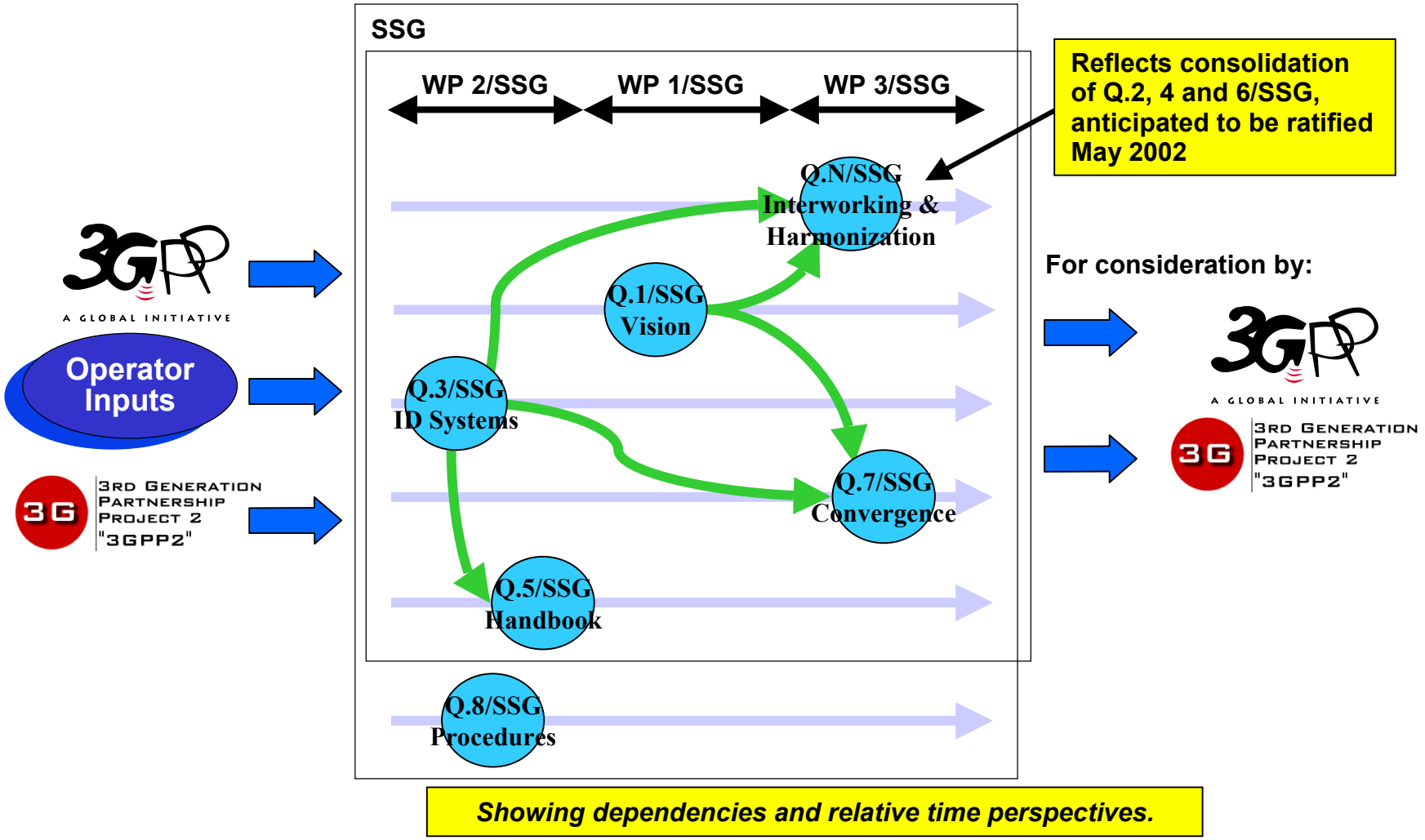
IP CN Harmonization Workshop

- **Participants at the Workshop in Toronto (3-4 April 2002) agreed on a number of points:**
  - **The considerable alignment of 3GPP IMS and 3GPP2 MMD was recognized**
  - **Priority areas for harmonization were identified**
  - **A high-level "IMS Harmonization Reference Model" was recommended for adoption by 3GPP and 3GPP2**
  - **Support was given for aligning terminology, the functional entities and interfaces in 3GPP/2 Reference Model**
- **Future interactions:**
  - **Promotion of harmonization activities by 3GPP and 3GPP2**
  - **3GPP/3GPP2 collaboration on inputs to IETF**
  - **Work common evolution strategy taking into account the vision work in other groups (including ITU)**

Summary of SSG Mandate

- Lead SG on IMT-2000 and Beyond and for mobility
  - Primary responsibility within ITU-T for overall network aspects of IMT-2000 and Beyond
- Will study:
  - Vision for IMT-2000 and Beyond (circa 2010)
  - Identification and globalization of IMT-2000 Family members
  - ***Support Harmonization of evolving IMT-2000 Family members***
  - ***Convergence of fixed and wireless networks***
- To assist developing countries in applying IMT-2000
- Emphasis on strong cooperative relations and complementary programs with SDOs and 3GPPs

SSG Work Topics and Relationships



Q.N/SSG Task Objectives

- *Identify functions required to facilitate appropriate interworking among IMT-2000 family members* developed by relevant SDOs, the PSTN/ISDN, and Packet Data Networks (including the Internet) and document appropriately for consideration by the Partnership Projects and SDOs, and other ITU-T SGs as part of their long term network evolution plans:
  - Establish co-operative working arrangements with external organizations to ensure that work does not overlap with external organizations
  - Identify and study the *degree of harmonization of existing IMT-2000 networks* and document these in an appropriate manner.
  - Identify and study appropriate *harmonization issues of the existing IMT-2000 systems where harmonization may be desired*; document appropriately.
  - Develop *harmonization proposals for evolving IMT-2000 systems*, document appropriately for consideration by the Partnership Projects and SDOs as part of their evolution plan

Q.7/SSG Task Objectives

- Convergence of fixed and existing IMT-2000 systems
  - The foundation for migration paths to interoperable and harmonized network architectures to provide service transparently to users across different network access arrangements
  - Studies on network aspects and protocol requirements for Service Provisioning, Mobility Management, Session Control, and Bearer Control
  - Initial output document will describe principles and requirements for convergence of public fixed networks and existing IMT-2000 networks

Concluding Remarks

- IP CN Harmonization is of great help for seamless roaming in IP Multimedia Domain, and enabling common application for it
- Must consider the view of operators' evolution plan and must not delay business plans of operators
- Close collaboration with the 3GPP/3GPP2 will be required.
- Seminar participants are encouraged to submit contributions to help progress ITU-T SSG work in the area of Interworking/Harmonization and Fixed/Mobile Convergence