

Exploring 3GPP Rel 9

3GPP TSG SA Chairman

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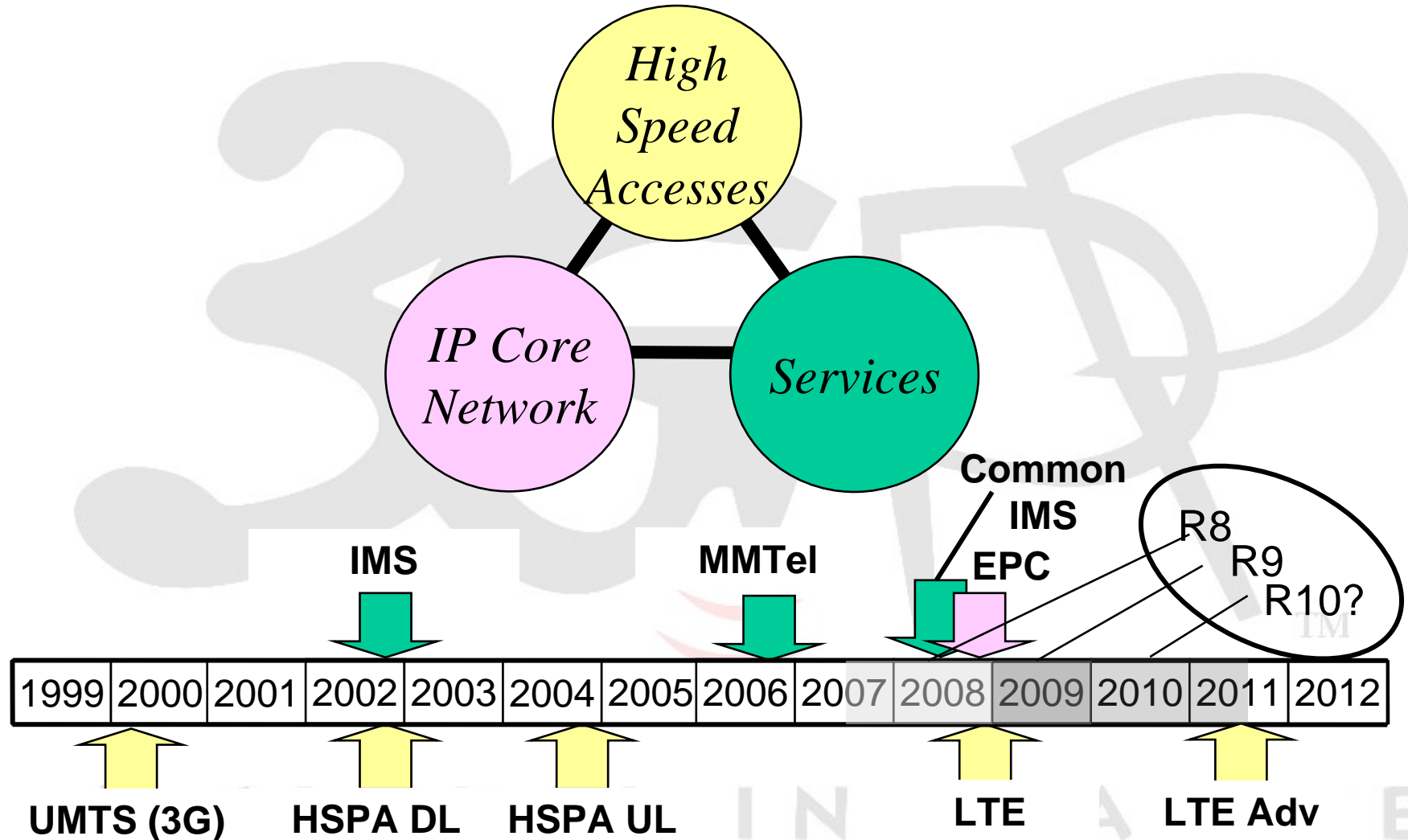
Contents



- **How Does R9 fit in the 3GPP release cycle**
- **Major items in the R9 catalog**
 - New services
 - New deployment & migration scenarios
 - New GERAN and UMTS (HSPA) efforts
- **Summary**

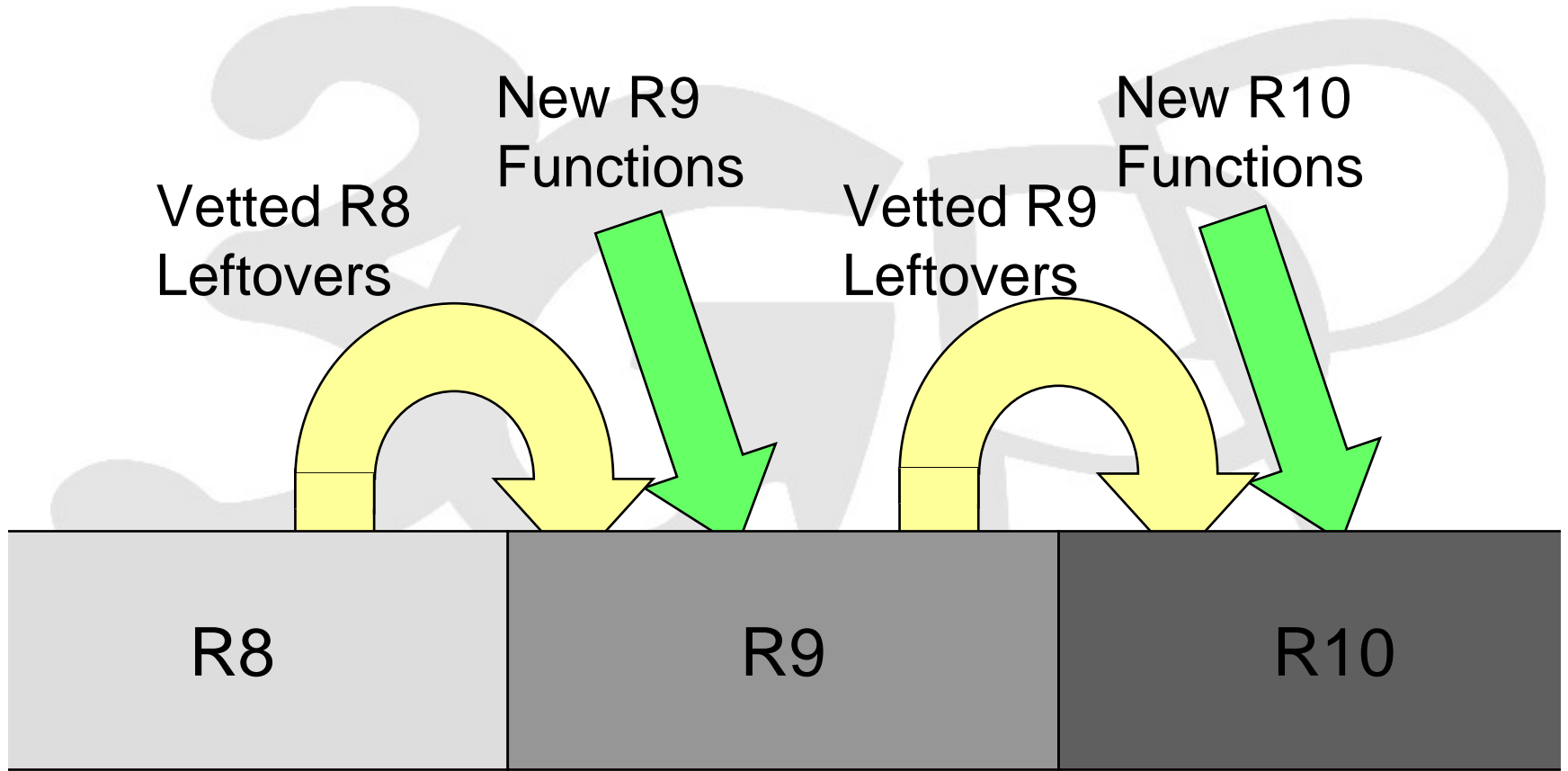
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3GPP Timeline



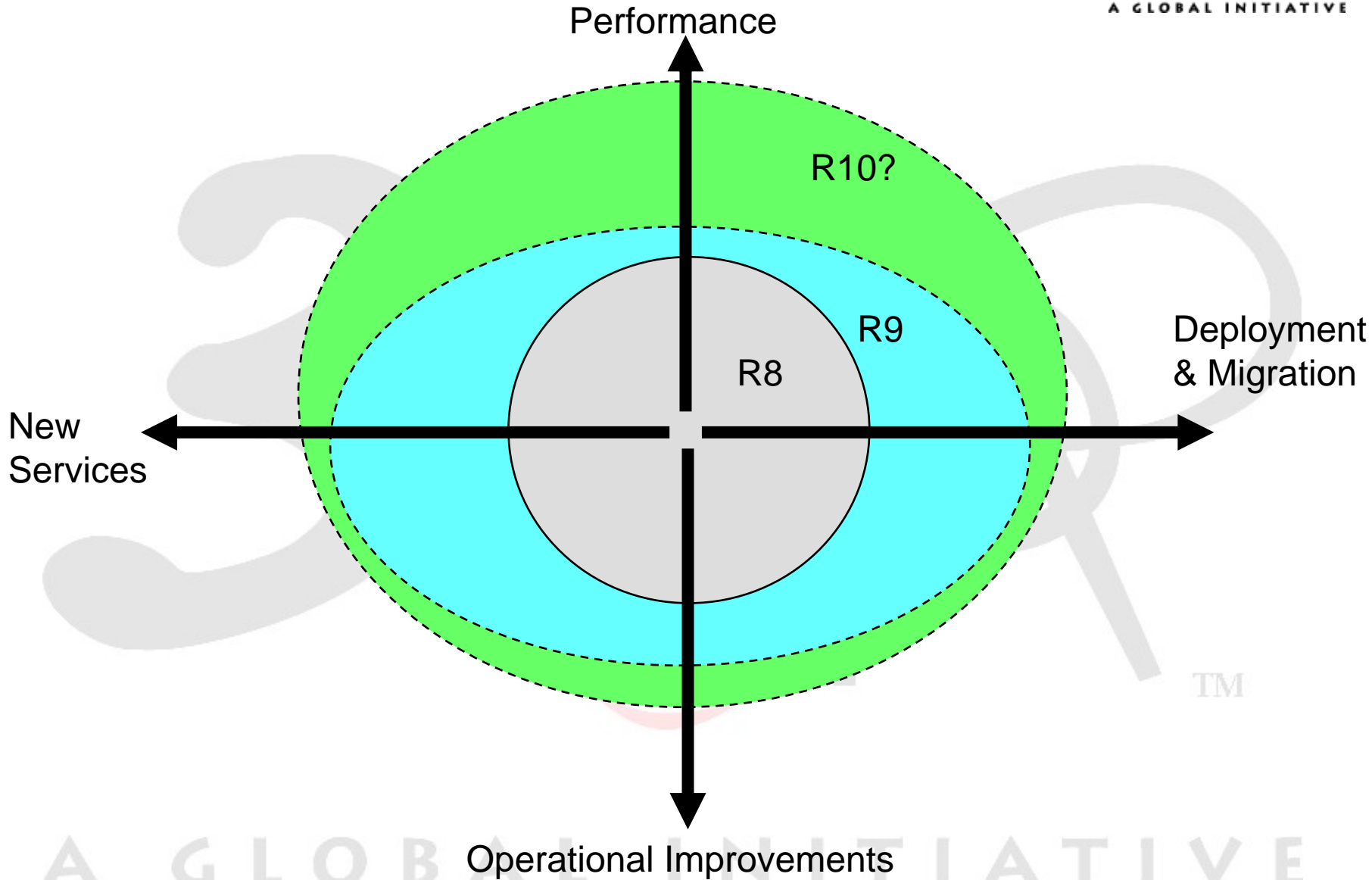
LTE World Summit, May 19, 2009

The 3GPP Release Cycle



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Many Ways of Improvement



Types of R9 improvements

Performance

- Dual band configurations
- UTRAN range improvements
- High speed scenarios

New Services

- Regulatory Requirements for VoIP
- More VOIP service equivalents
- Public Safety

Deployment & Migration

- HNB improvements (incl LTE)
- More multi-access scenarios
- More FMC Options
- 800Mhz band

- Various O&M improvements
- Database for network data
- More self-configuration

Operational Improvements

Full Set of Rel 9 Features*



- Services Alignment and Migration
- Registration in Densely-populated area (RED)
- End-User Identity
- Customized Ringing Signal
- Public Warning System
- Enhancements to Multimedia Priority Service
- Support of Personal Area Networks and Enhancements to Personal Network Management
- Multi-Media Telephony Service enhancements
- **User Data Convergence**
- Enhanced Home NodeB / eNodeB
- Protection against Unsolicited Communication for IMS (PUCI)
- IMS Services Centralization and Continuity
- Enhancements of IMS Customized Alerting Tone (CAT) Service
- Service Specific Access Control in EPS
- Support for IMS Emergency Calls over GPRS and EPS
- LCS for LTE and EPS
- MBMS support in EPS
- Access Network Discovery and Selection Enhancements
- GTP-based S8 chaining
- Multiple PDN to the Same APN for PMIP-based Interfaces (Stage 2)
- Multi Access PDN Connectivity (Stage 2)
- Access Security Enhancements

*As of TSG#43 (March 2009)

RED = Not a Rel 8 carryover

Full Set of Rel 9 Features* (cont.)

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- GBA Push enhancements
- IMS Media Plane Security (Stage 2)
- **Timed Graphics**
- Managing MTSI Media Adaptation
- PSS and MBMS extensions
- Improved Video Support for PSS and MBMS
- IMS based PSS and MBMS User Service extensions
- Various OAM&P Improvements
- Value-Added Services for Short Message Service
- Definition of 3GPP UICC services over the new high-speed interface
- CS-IBCF and CS-TrGW definition in 3GPP specifications
- IMS – Interconnection Border Control Function (IBCF) – Transition Gateway (TrGW); Ix Interface; Stage 3
- IMS Application Level Gateway Control Function (ALGCF) – IMS Access Media Gateway (IMA-MGW); Iq Interface; Stage 2 and Stage 3
- Rel-9 Improvements of the Radio Interface
- Rel-9 RAN improvements
- LTE improvements
- Self-Organizing Networks (SON)
- **Voice services over Adaptive Multi-user channels on One Slot**
- **Local Call Local Switch**

*As of TSG#43 (March 2009)

RED = Not a Rel 8 carryover

Full Set of Rel 9 Studies*



- Study on enhanced voice service requirements for the EPS
- Study on advanced requirements for IP interconnect
- Study on Service Specific Access Control in EPS
- Study on Unauthenticated PS Emergency Calls
- Study on Personal Broadcast Service
- Study on LCS support in SAE for non-3GPP accesses
- Study on CS Domain Services over EPS access
- Study on Extended Support of IMS Emergency Calls
- Study on System enhancements for the use of IMS services in local breakout and optimal routing of media
- Study on Intra Domain Connection of RAN Nodes to Multiple CN Nodes
- Study on IMS Evolution
- Study on enhancements to IMS border functions for IMS Interconnection of services
- Study on Multi Access PDN connectivity and IP flow Mobility
- Study on Service Continuity for Emergency Voice Calls
- Study on Protection against SMS and MMS spam
- Study on Remote management of USIM application on M2M Equipment
- Study on UTRAN key management enhancements
- Study on Surround Sound codec extension for PSS and MBMS
- Study on System Maintenance over Ipf-N

****As of TSG#43 (March 2009)***

Full Set of Rel 9 Studies (cont.)*



- Study on Self-Organizing Networks (SON) related OAM interfaces for Home NodeB
- Study on Self-healing of Self-Organizing Networks (SON)
- Study on Service Oriented Architecture (SOA) for IRP
- Study on Rc Reference Point Functionalities and Message Flows
- Study on Telecommunication Management; Energy Savings Management (ESM)
- Study on Evaluation of the inclusion of Path Loss Based Technology in the UTRAN
- Study on LTE-Advanced
- Study on 1.28 Mcps TDD Home NodeB
- Study on E-UTRAN Mobility Evaluation and Enhancement
- Study on Measurement of Radiated Performance for MIMO and multi-antenna reception for HSPA and LTE terminals
- Study on Minimization of drive-tests in Next Generation Networks
- Study on Enhanced Interference Management for HNBS

****As of TSG#43 (March 2009)***

New Services in R9

- **Public Warning System**
 - Generalization on Earthquake and Tsunami Warning System (ETWS)
- **Service Specific Access Control**
 - Avoiding congestion
- **VOIP (IMS) upgrades to various services**
- **Machine to Machine Network Improvements**

New Deployment & Migration Scenarios in R9



- **Circuit Switched to VOIP**
 - Service continuity improvements
- **3GPP/Non-3GPP accesses -> LTE**
 - Support of a more complete set of handoff scenarios
 - Support of additional architectural options
- **LTE HNB (Femtocells)**
 - Improvements to overall HNB capabilities
 - Integrated architecture for HNB
 - Specification of LTE HNB

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Continued Improvements in non-LTE Accesses in R9



- **HSPA improvements**
 - Various dual cell configurations
 - 800 MHz
 - High Speed TDD
- **GERAN (GSM,GPRS) improvements**
 - Voice services over Adaptive Multi-user channels on One Slot
 - Local Call Local Switch

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Summary

- R9 is a short release (1 year)
- R9 is mainly R8 leftovers, but not necessarily LTE leftovers
- R9 is not a release to Fix R8
- R9 broadens LTE deployment scenarios
- R9 also advances non-LTE technologies

Thanks for your attention !

*More information at
www.3gpp.org*

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