

WiMAX Forum Network Specification Development

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Disclaimer...

- Views should be considered the personal views of the author rather than the formal position, explanation, or interpretation of the WiMAX Forum
- The WiMAX Forum has not reviewed or endorsed this presentation

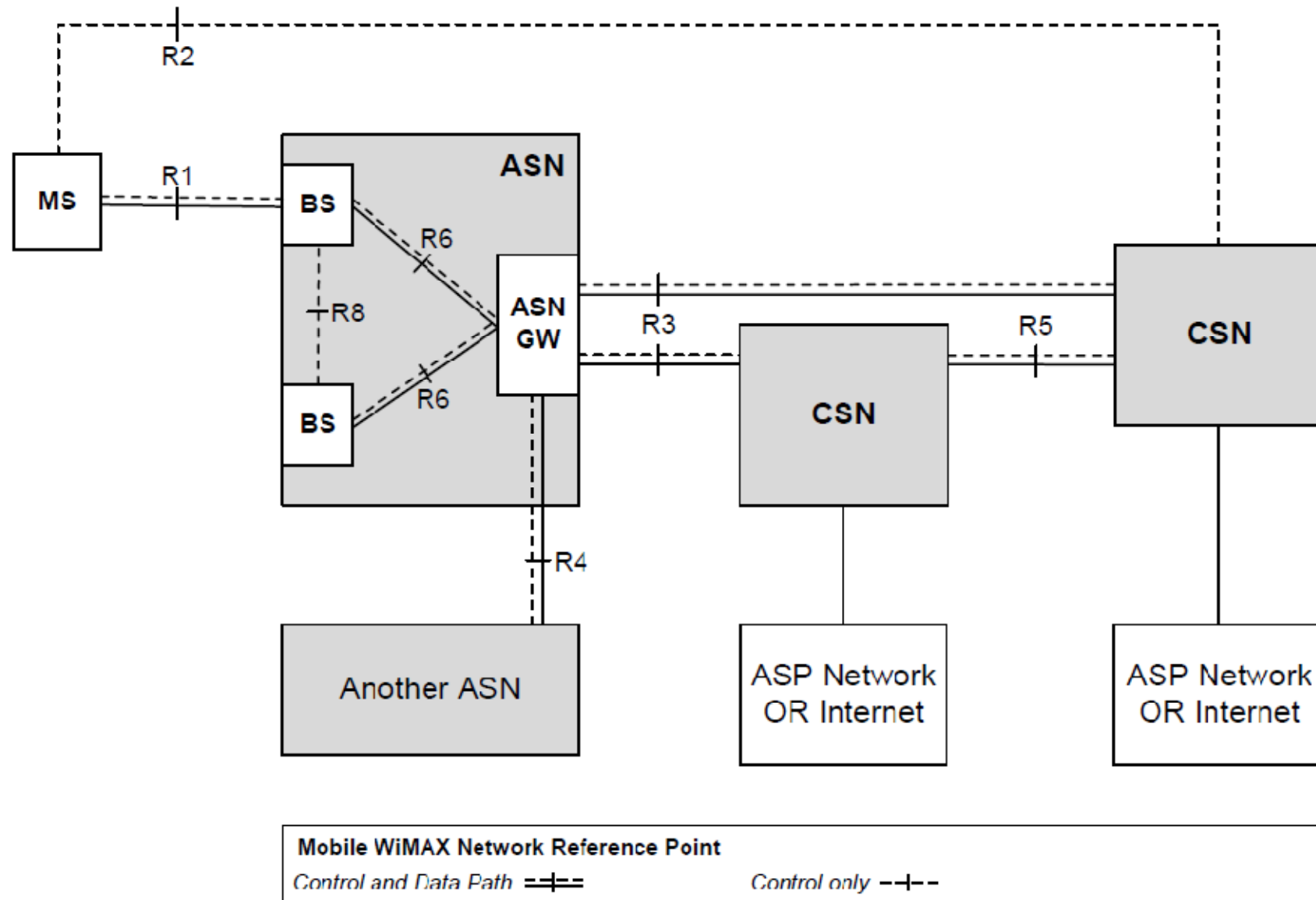
WiMAX Network Working Group

- WiMAX Forum is an Industry Forum organized to promote the market adoption of solutions based on the IEEE Std 802.16 technology
- Network Working Group (NWG) is one of a few technical working groups in the WiMAX Forum
- NWG develops Stage 2 Architecture and Stage 3 Protocol Design technical specifications for network communications in WiMAX networks
- NWG active since 2004
- NWG has completed the development and publication of three revisions (Release 1, Release 1.5, and Release 1.6) encompassing 40+ specification documents
- Release 2 in process; due to complete Release 2 mid-2011
- Future releases

NWG Architecture

- Stage 2 Architecture
 - IP packet network based; routed control, virtual circuit switched data path
 - Bifurcated network design: Access Network (ASN) and Core Network (CSN)
 - Network design facilitates both traditional cellular operator with single access network and unified core, as well as newer models where the access network may be shared by multiple real and/or virtual service providers (wholesale and MVNO)
 - Functional decomposition as opposed to logical decomposition
 - Identified interface reference points for protocol design

NWG Architecture: NRM



NWG Specifications

- Stage 3 Protocol Design with basic functionality
 - Control message network protocol design; header and payload formatting and transport protocol rules
 - Data path design and method; tunneling methods
 - Network discovery and selection
 - Network entry and exit
 - Authorization and authentication
 - Air interface and mobility security key hierarchy and distribution methods
 - Network layer security
 - Service establishment/subscription profile & QoS (RADIUS & Diameter support)
 - Network protocol service establishment and address assignment (Ethernet, IPv4, IPv6)
 - *continued...*

NWG Specifications

- Stage 3 Protocol Design with basic functionality *(continued)*
 - Mobility management (ASN & CSN; Ethernet, Simple IP, PMIP, CMIP; v4, v6)
 - PoA mobility (handover); data integrity during HO
 - Accounting (pre-paid; post-paid)
 - Radio resource management (RRM)
 - Idle Mode operation

NWG Specifications

- Additional Feature Stage 2&3 specifications added as part of R1, R1.5 and R1.6
 - Lawful Intercept; Lawful Intercept-NALI
 - Emergency Services
 - OTA; OTA-OMA-DM; OTA-TR-069
 - Robust Header Compression (RoHC)
 - IP Multimedia Subsystem (IMS) Interworking
 - Policy and Charging Control (PCC)
 - Location Based Services (LBS)
 - MCBCS; MCBCS-DSx; MCBCS-Appplayer
 - WiMAX SIM
 - Universal Services Interface (USI)
 - *continued...*

NWG Specifications

- Additional Feature Stage 2&3 specifications added as part of R1, R1.5 and R1.6 *(continued)*
 - R6 Flex
 - WiFi Interworking
 - Femtocell
 - Self Organizing Networks (SON)
 - IPv4/IPv6 transition
 - Emergency Telecommunications Services (ETS)
 - OTA Bootstrap and other enhancements
 - Device Reported Metrics & Diagnostics (DRMD)
 - Enhancements to ASN-GW anchor relocation

NWG Specifications

- Additional Feature Stage 2&3 specifications currently in progress for Release 2
 - IEEE 802.16m core features support
 - WiMAX Voice over IP Service (WVS)
 - Lawful Intercept for IMS based WVS
 - Lawful Intercept for the USA (BB data, voice & messaging)
 - DRMD Phase 2 additions
 - ETS Phase 2 additions
 - ASN Local Routing
 - Device Reported Metrics & Diagnostics (DRMD)
 - Enhancements to ASN-GW anchor relocation
 - MS aspects of roaming
 - Multiple IP Address support

NWG Specifications

- Additional Feature Stage 2&3 specifications beyond Release 2?
 - IEEE 802.16m extended features support
 - ????