

A Service-aware, Next Generation Network Architecture Enables On-demand Services



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Agenda

- Introduction
- Impact of Video on Network Traffic
- From Quality of Service to Quality of Experience
- Intelligent Ethernet/IP-Optimized Network Strategy
- Resource and Admission Control Function (RACF)
- Summary

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Impact of Video on Network Traffic

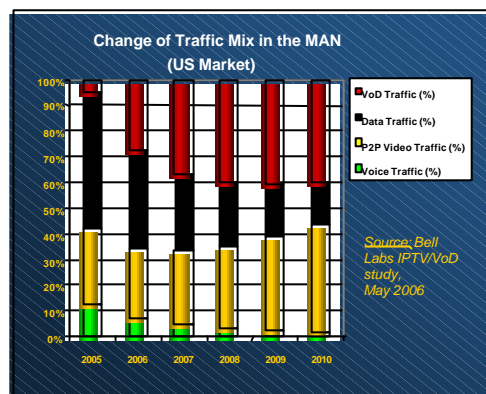
IPTV and Video on Demand (VoD) will redefine the Access and MAN Space

- VoD/IPTV will grow by an order of magnitude over the next 5 years
- 2005: 90% best-effort data traffic
- 2010: 40% high-priority VoD traffic, 50% best-effort data traffic
- Carrier-class links with capacities of 40G and 100G required in MAN

Broadcast IPTV and streaming VoD is high-priority traffic, close to TDM

- Very different from today's best-effort bursty data traffic

Broad- and multicast video distribution must leverage existing ring networks



Service providers need to deploy scalable, efficient and secure networks that enable innovative multimedia services while providing QoS

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From Quality of Service to Quality of Experience

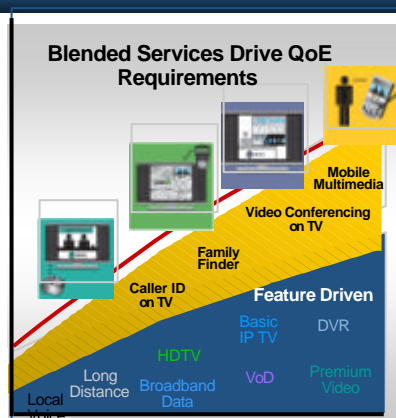
Creating the Network Experience for End Users

Blended Services on a Massive Scale

- End-users willing to pay for new, dynamic personalized services, many of which require Service Aware QoS – VOIP, BB, Video
- Video applications driving additional growth in network usage

Networks must provide more sophisticated management, integration, migration and maintenance services

- Dynamic, continuous session-state, end-to-end QoS
- Service aware to efficiently manage costs
- Network QoE: Scale, QoS, Reliability, Resiliency
- Multi-network, multi-vendor management
- Legacy Migration



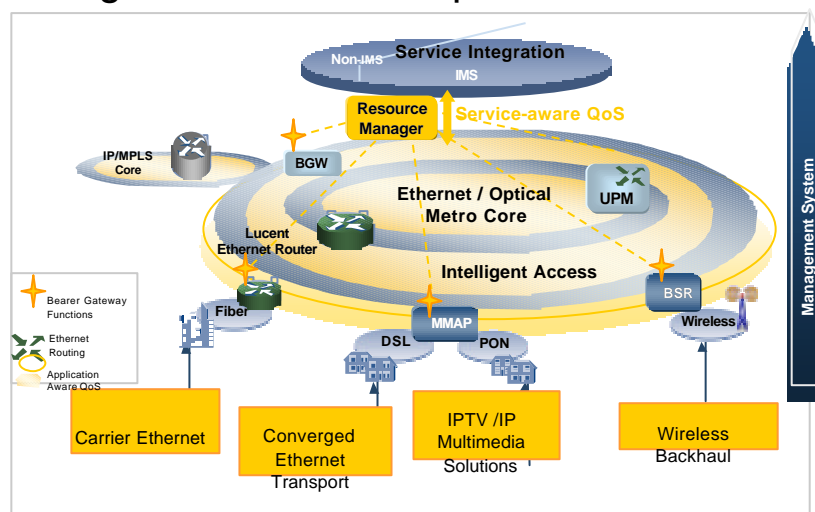
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Intelligent Ethernet/IP-Optimized Network

- Allows for improved network cost structure with **fewer elements and layers**.
- Ensures **Quality of Experience** with Intelligent Access and Ethernet/Optical Metro Core
- Ability to tightly **integrate with IMS**.
- End-to-end solutions extend and leverage current infrastructures and set the stage for **wireline/wireless convergence**.
- **Service Intelligent Access** - efficient routing, flexible service delivery across multiple access technologies
- **Policy Based Service Aware QoS** - based on individual applications, user needs

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Intelligent Ethernet/IP-Optimized Network



IMS - IP Multimedia System; UPM - Universal Packet Mux; MMAP - Multimedia Access Platform; BSR - Base Station Router

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Resource Admission Control Function (RACF)

- Application driven, centralized control for Core, Aggregation, and Access elements
- Differentiate service from “best-effort” by providing guaranteed QoS (not just “pipe”)
- Standards based open interfaces to both IMS and Non-IMS Applications/Services
- Policy function integrates control of NAPT, firewalls, and NAT traversal
- Independent network elements or part of integrated IMS solutions

Policy-based Bandwidth, QoS and Bearer Control spans entire network, based on individual applications and user needs/SLAs

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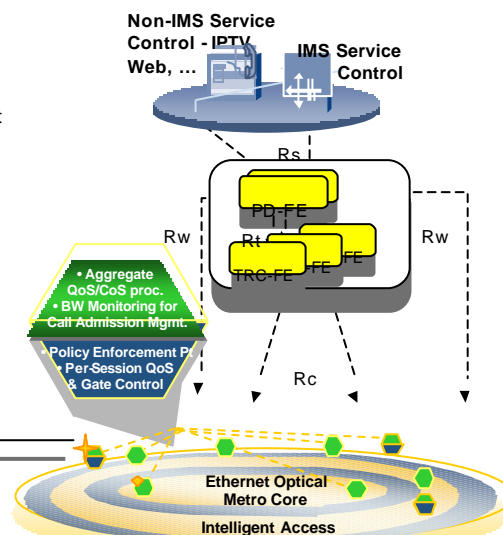
Resource Admission Control Function (RACF)

Network Level

- Policy Decision Functional Element (PD-FE)
- Transport Resource Control Functional Element (TRC-FE)

Element Level

- Policy Enforcement Functional Element (PE-FE)



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Summary

- IPTV and Video on Demand (VoD) will redefine the Access and MAN Space
- Broadcast IPTV and streaming VoD is high-priority traffic
- Networks must provide more sophisticated management, integration, migration and maintenance services
- End-to-end solutions extend and leverage current infrastructures and set the stage for wireline/wireless convergence
- A Service-aware, Next Generation Network Architecture Enables **On-demand Services**

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