Addressing IPv6 Migration with Systems Management Tools

Overcoming the migration barriers with service management systems

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Background

IPv6 migration is commonly seen as a network technology issue, but there are IT industry and commercial barriers, legacy systems to evolve and IT budget issues. This presentation identifies the barriers to IPv6, and highlights the "IT dollar competition" issues and the need for some higher level approaches to IPv6 migration

wwite is developing a next generation – Service Delivery Platform and we consult to senior executives in the telco, commercial and government sectors..

Just FYI – We worked with the IETF IPv6 Team in 1995-6.
Co authored RFC1888 - NSAP (and Telephone Numbers) as address forms for IPv6 .
The intent of RFC1888 was to assist with network evolution, migration and interworking

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Earlier this year, wwite developed an ICT industry report identifying the barriers to IPv6 migration. The barriers identified are:

- Competing IT initiatives that offer commercial returns
- Competing system evolution initiatives are receiving greater promotion – e.g customers
- Financial restrictions
- Online companies have other priorities - e.g. governance , privacy, compliance
- Vendors do not see a business case
- The IPv6 migration outcome is difficult to quantify
- The IPv6 network is a complete change – it is a new network
- System integrators are not being briefed by customers
- Network migration issues are complex in the larger legacy environments
- Application demonstrations are by virtue of their preliminary nature, limited
- IETF IPv6 standards are still being developed
- Security issues are complex - or complicate existing methods
- Telco/ISP support for IPv6 is slow but starting in 2010
- Government systems are proceeding slowly

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Our Views: The preparation for IPv6 migration requires the following:

Policy and Governance
In order to govern the IPv6 migration process, an organization wide policy or policy framework needs to be developed to provide its rationale, authorize the process and the investment in it and give managerial guidance as to the tasks, costs and risks.

Systems Configuration Audit
In order to assess the dimension of the task for each organization with respect to urgency, cost and resource requirements, the existing systems need to be audited as to their hardware and software components and the component applicability to IPv6.

Business Unit and Commercial Interfaces
In order to ensure business continuity, the IP service interfaces and the DNS sub-systems need to be assessed as to their migration and upgrade requirements with respect to urgency, cost and resource requirements.

IPv6 and Service Migration Skills
IPv6 skills and training courses are necessary and are available within the IT industry. However, the deployment strategy and operational skills can be scarce. Preparation should be made to assign staff to the migration program and to provide workshop sessions for the migration phase.

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Network end points and identifiers slowly evolve and converge. The online world cannot be switched off for upgrades

- Telephone Numbers: Introduced in 1870 will be around for a while
- IPV4: 1983 to 2050?
- IPV6: 1995 to ?
- URI @name forms: hosts, users, companies, services, content, devices - 1985 - forever

- DNS and dynamic DNS functionality – a critical function in the network that deals with its naming, addressing, topology and service properties and how distributed applications inter-work over the networks.

- Identity and information management – a critical system function that determines how users relate to, manage and employ the services of the network.

- Any network or service evolution affects both parts. With IPv6 it's a question of "rebuilding the plane while it is flying".. without the passengers complaining.

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The IPV6 migration issues are different depending on network use, but all affect DNS configuration and E.163 endpoint and IP service management

OTT service providers – Use the Operator's fixed and mobile networks as well as private intranets / extranets

NBN initiatives – are about national infrastructure for transport, health, education, energy management and emergency services and reaching more and more people with more services.

Mobile Operator – inserting IP technologies for their own global domain and device growth

Government and commercial - users have their own Telephone systems and IPv4 Intranets and Extranets

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IP Addresses : Even the way IP addresses are used within the larger systems can be very different

- Can be constrained to the “network layer” … OR
- Assigned to locations.. Location based content services
- Used to identify the source, for mail spam and bandwidth abuse,
- Used to manage access systems (boot files and CPE).
- Used as revenue earning product sets (1IP, 2IP and 3IP)
- Used in fixed lease blocks for commercial customers
- Used under a range of DHCP leasing policies
- Used to trace communications or for interception
- Used to record customer access behavior (where and when).

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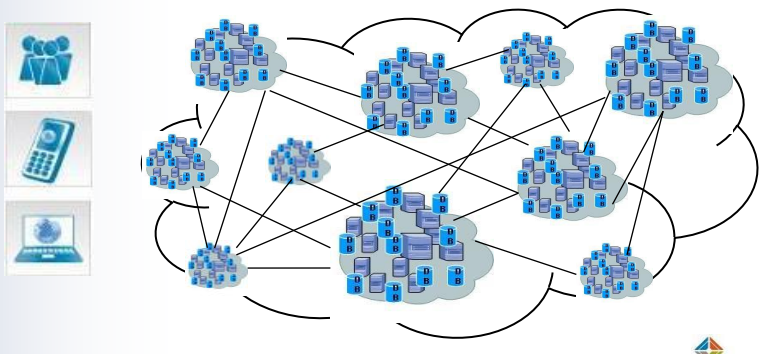
The issue: Too many parts with too many owners. The parts are organisationally owned, but technically interconnected to form infrastructure.

The real issue is the users – they want 24 * 7 operation



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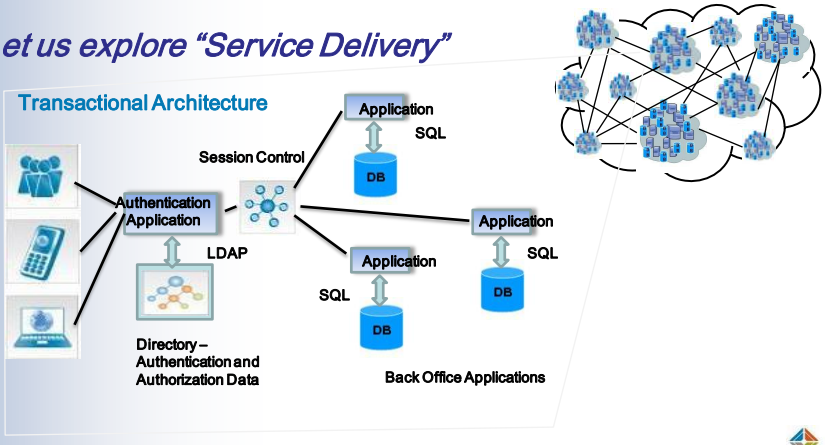
Configuration management and service delivery are key functions that enable systems to evolve and adopt new ideas, new services, new technologies.

Let us explore "Service Delivery"



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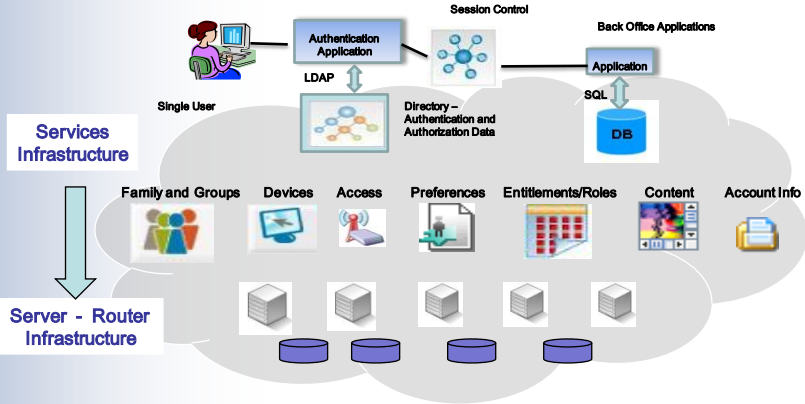
Service delivery embraces many parts of a system – many of which manage, use or rely on IP addresses…
How do we manage the "service delivery" issues in the IPv6 migration?



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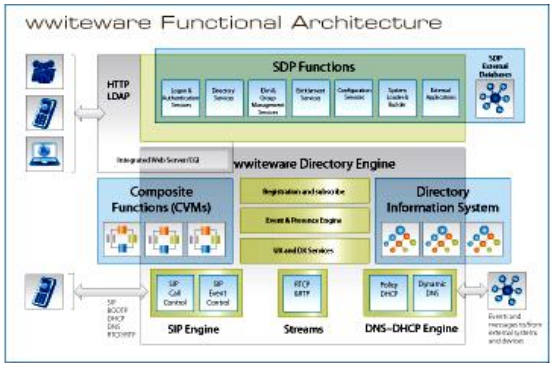
wwiteware Service Delivery Platform
A services management and convergence function, it comprises 3 layers

Management and governance layer

Service convergence and directory engine

Protocol convergence layer



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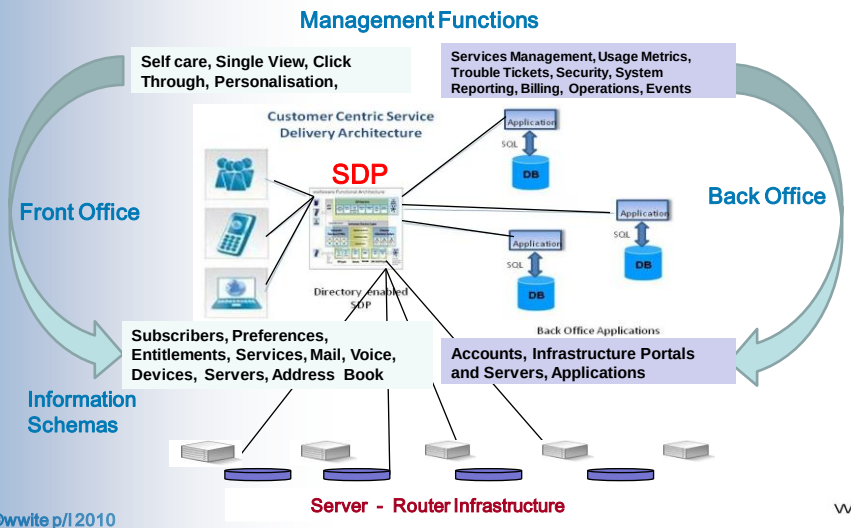
wwiteware – a Service Delivery Platform addressing "front of house" identity management, service delivery and infrastructure management



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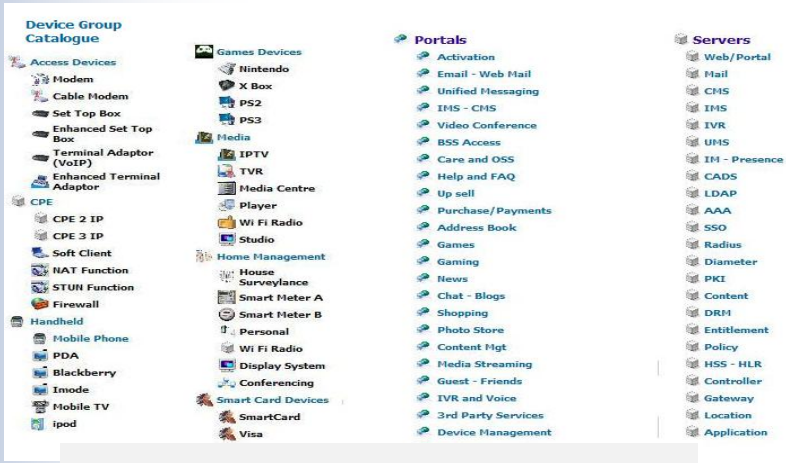
wwiteware contains a configurable device and infrastructure catalogues that can be used to prototype single view services. It can also be used to indicate if a device , server or application is capable of IPv4, IPv6 or both



Identity management applies to devices , portals and servers

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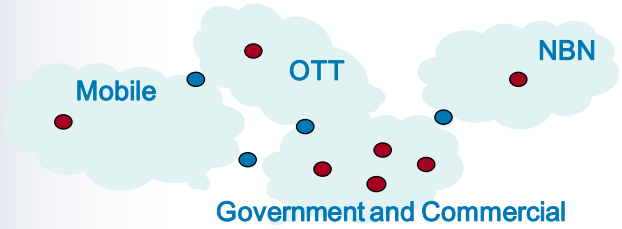
Perhaps IPv6 transition needs a configuration and services management focus within and between networked systems.



- Maintaining and improving service delivery is a key deliverable with the IPv4 to IPv6 migration process.
- Configuration and systems management functions are part of the IPv6 migration process
- The current and planned investments in service delivery systems can provide pull through for the IPv6 migration agenda

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Addressing IPv6 Migration with Systems Management Tools Overcoming Barriers

- The IPV6 technologies work, it's the system and operational management issues that need the attention.
- Companies have budgets for system evolution and service improvements – particularly around customer centricity.
- wwite – with wwiteware is addressing next generation service management and delivery, and IPv6 is a big part of that.

Thank You

See www.wwite.com

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