



**CabinetOffice**

## Public Sector Network

*[0.7]*

*Making  
Government  
Work better*

# UK PUBLIC SECTOR ICT STRATEGY

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## THE UK PUBLIC SECTOR

- is highly devolved
- each Organisation has the ability, and constitutional right, to decide on its own approach to ICT etc.

## BUT

- As a whole, the Public Sector is a huge market with ability to influence price and direction
- All organisations have a duty to ensure value for money – this means not re-inventing the wheel
- There are some strategic ‘common good’ goals which will only achieve full benefit if addressed at a long term national level (e.g. Green ICT) rather than looking at short term local benefits

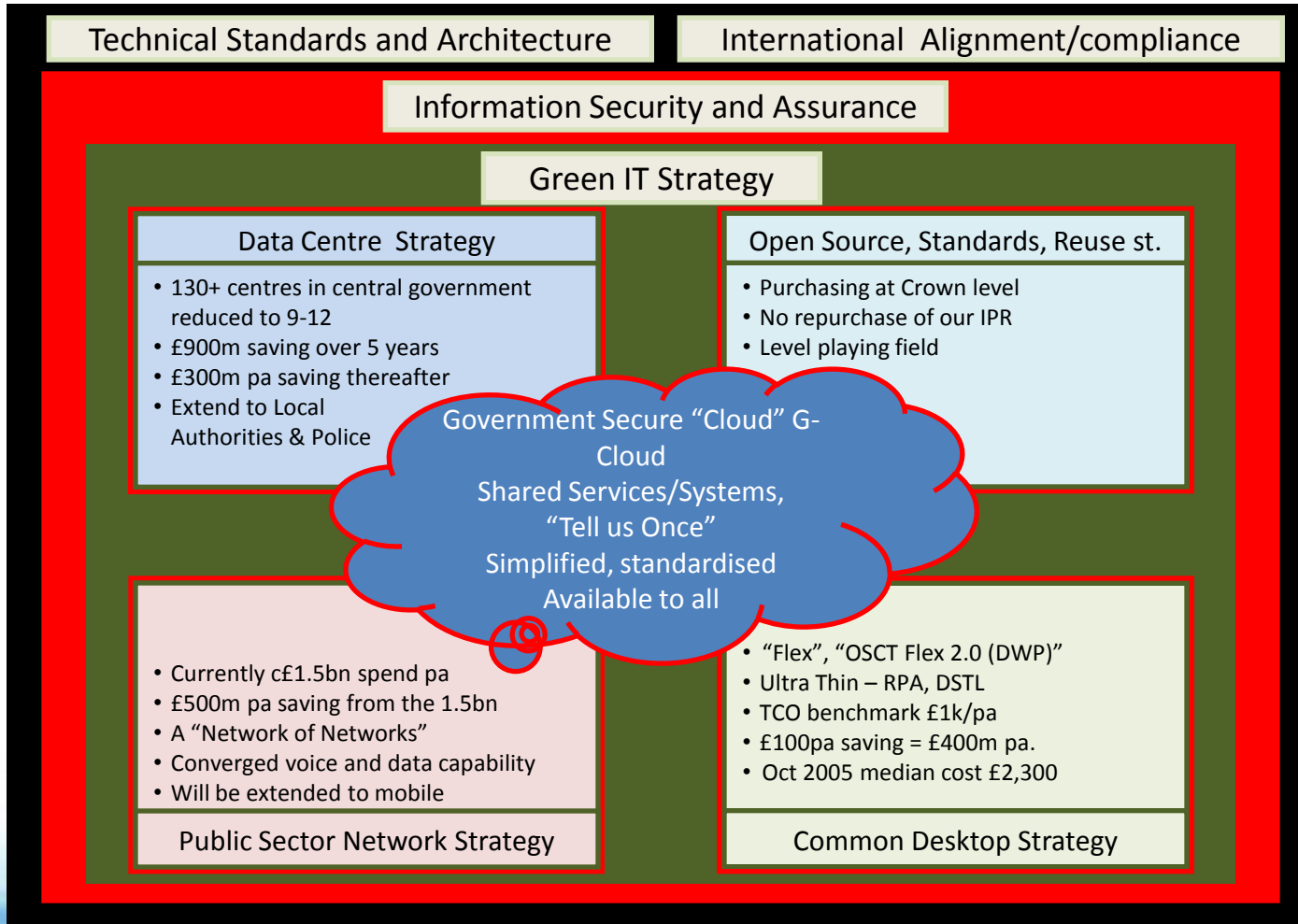
## SO

- The strategy sets out to create a common approach to infrastructure, bound together by common standards and procurement routes.
- This will create a ‘fifth utility’ where computer resources, computer cycles and storage are accessed on demand like the existing electric, gas or water utilities.

# UK PUBLIC SECTOR ICT STRATEGY

Capable people, capable departments  
 Improving knowledge, skills and experience to deliver the demands placed upon us

Delivering better projects with greater certainty of delivery and benefits - Portfolio Management, Programme Assurance, benchmarking/OEP & Benefits Realisation



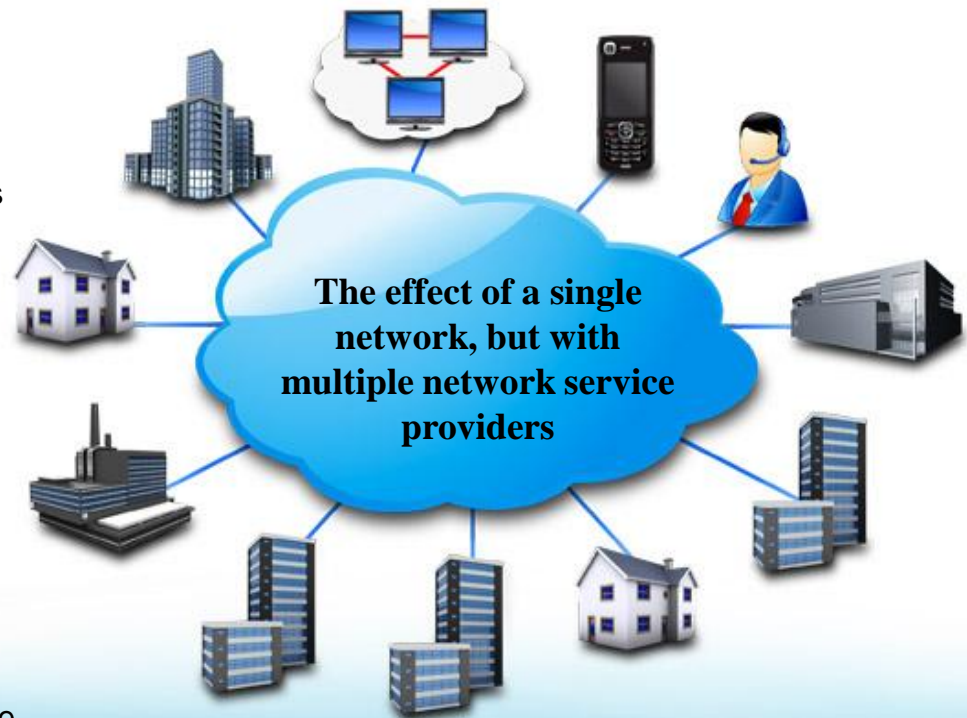
Better value and performance from all parties - supplier management, 2-way assessment & collaborative procurement

Shared Services building once, using many – sharing front middle and back office systems and services and moving applications to the Government Cloud ("G-Cloud")

# THE VISION - A NETWORK OF NETWORKS

- The PSN vision – users seamlessly linked through a ‘network of networks’, governed by uniform standards and capable of accessing a range of business services when they need them with security and integrity guaranteed
- Through creating an open marketplace governed by interoperability standards the Public Sector Network (PSN) aims to revolutionise the way the public sector buys and uses Voice and Data networks. It will drive efficiency savings, set a range of technical and service standards, and improve the effectiveness of services
- It will cover all Public Sector bodies.
- The PSN aims to create a versatile private network for the Public Sector. Allowing Depts, Agencies and others to connect and share services
- Through collaborative procurements a range of compatible and compliant services will be made available, creating an innovative market place to buy competitively priced services.

## THE PSN VISION



# WHY SHOULD WE DO IT?

## PSN Is The Way Forward

- Currently Public Bodies procure their telecommunications in a needlessly expensive and haphazard manner. Effort is often duplicated and a third of network spend goes on 'gluing' components together.
- The PSN will seamlessly link the Public Sector – providing interoperability through standards agreed between network service providers.
- Customers will no longer need to have, or hire through third parties, the expertise to provide detailed technical specifications – just the capability and performance outcomes required.
- Target savings are in the region of £500m a year, almost enough to build two large hospitals.
- PSN will cost little to deliver as it will make use of existing equipment and collaborate with the market to design solutions rather than buying them from a single supplier, yet it will achieve significant benefits, and align the public sector with marketplace trends. Why wouldn't we do it?

## Catalyst For Change

- The Cabinet Office set the ball rolling in its strategy paper '*Transformational Government – Enabled by Technology*', followed by the Operational Efficiency Programme, the Digital Britain policy, and other Government strategies; all of which have recognised the strategic importance of PSN.
- The Operational Efficiency Programme (OEP) and the Digital Britain report have outlined a vision of how public services should be provided in the future, including:
  - Increased use of shared services
  - Collaborative procurement to assist departmental IT savings
  - Re-use of infrastructure
  - Encouraging Investment from public and private sector, and a redirection of investment from repeated vertically integrated solutions to shared and innovative services
  - Encourage safe network sharing
  - Creating new business models and a new market place

# MOVING THE PSN FORWARD

## CIO COUNCIL

The Government's CIO Council has been the driving force behind the formation of the PSN, supported by the Strategic Supply Board, OGC and the Collaborative Category Boards – seeing it as a key tool in enabling the delivery of Transformational Government. Aims include:

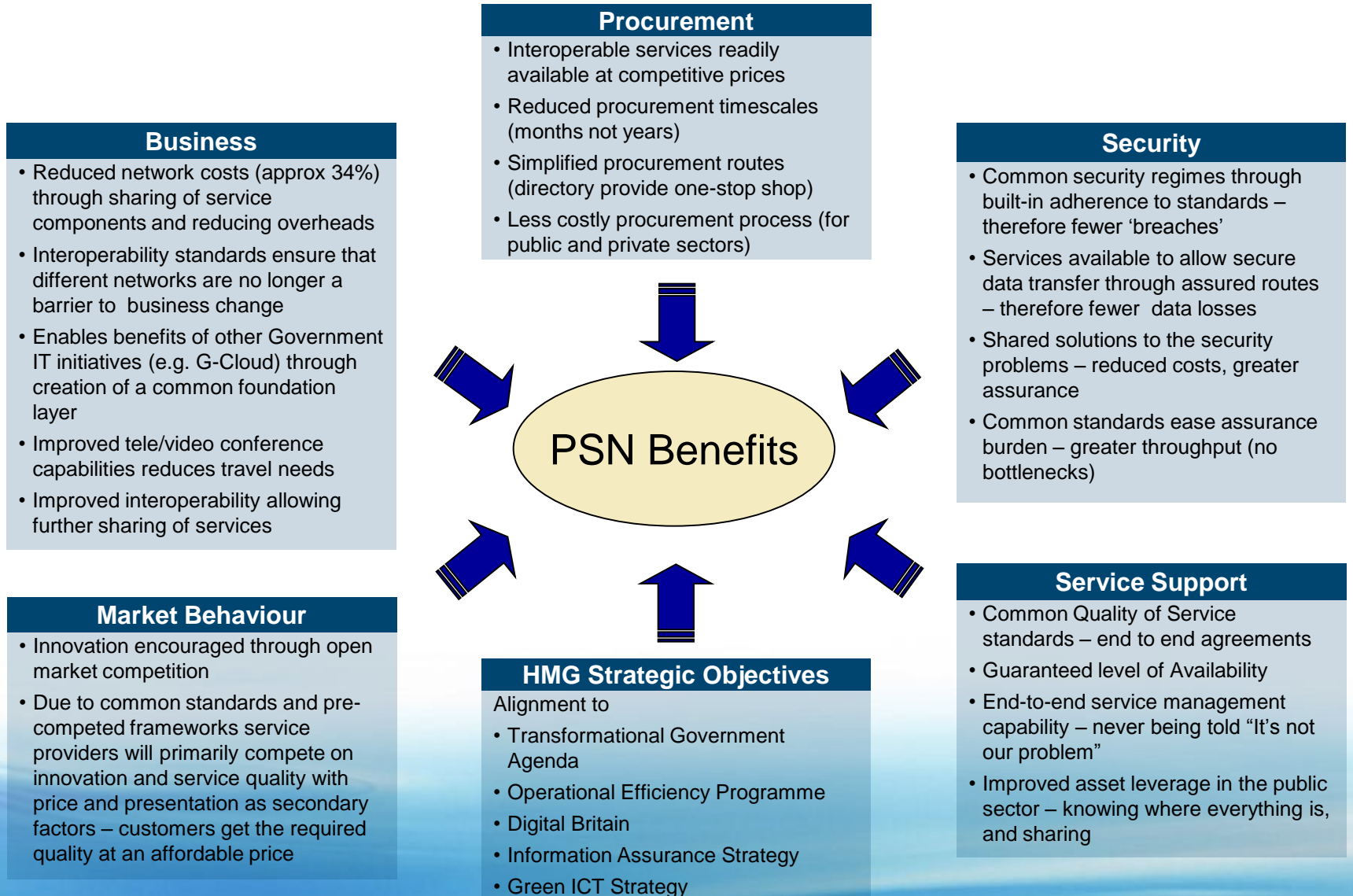
- understand, manage and leverage the Government's £16bn Public Sector IT spend;
- better value and performance from all parties – supplier management, two-way assessment and collaborative procurement;
- ensure the reuse of shared ICT infrastructure to reduce cost, reduce risk and reduce delivery timescales.
- deliver savings through collaboration on common ICT solutions;
- improve the delivery of Government policies such as the Green ICT strategy, OEP and Digital Britain; and
- demonstrate the advantages of collaborative procurement – leveraging economies of scale and eliminating the tendency to 'redesign the wheel'

## DIGITAL FUTURE – EMBEDDING THE ICT STRATEGY

- PSN is an enabler for the Government's ICT and Cyber Security Strategies, and is seen as a crucial part of the OEP and Digital Britain policy.

The screenshot shows the BBC News website interface. The main headline is "At a glance: Digital Britain" with a sub-headline "Lord Carter tells the BBC's Sophie Long why his Digital Britain report calls for phone line changes and punishing file sharing piracy." Below the headline is a video player showing Lord Carter speaking. To the right, there are sections for "DIGITAL BRITAIN LATEST NEWS" and "BACKGROUND". The "LATEST NEWS" section lists several items: "TV to gain licence fee share", "Crackdown on illegal file-sharing", "Digital Britain countdown begins", "Anti-piracy music deal for Virgin", "Net firms reject 'policy role'", "BBC licence fee 'could be shared'", and "Web pirates placed in 'slow lane'". The "BACKGROUND" section lists: "At a glance: Digital Britain", "UK broadband 'hotspots' revealed", "Broadband 'in every home by 2012'", "Broadband World: Mapping the global picture", "Satellite to fill broadband gaps", and "Broadband goes big in Japan". The "IN VIDEO" section lists: "Spooks firm warns piracy will kill off quality TV", "Carter: tariff plus piracy penalty", "Fergal Sharkey on stopping piracy", "Media 'subvention' rise", "Preventing illegal file sharing", "BBC Trust rejects sharing funds", "Levy to pay for broadband revolution", and "Japan's mega-fast rural link". At the bottom, there is a "RELATED INTERNET LINKS" section with links to the Department of Culture, Media and Sport (DCMS), Digital Britain, and Lord Stephen Carter. A "TOP TECHNOLOGY STORIES" section lists: "Broadband rates 'not up to speed'", "Robotic firefighting team debuts", and "Hacker's 'neutral crosser' over UFO".

# WHAT ARE THE BENEFITS SOUGHT FROM PSN?



# KEY BENEFITS OF THE PSN

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- Aims to enable reduction in costs of up to 34% (approximately £500m per annum) through reduced duplication, savings in network expenditure and shortened procurement exercises.
- Through interoperability standards and the ability to 'plug and play' new services it will provide a system that is more responsive to change.
- Re-use of assets will create greater efficiency and longer serviceable lives (therefore reducing overall costs).
- Authentication of users to common standards across the network enables authorisation of access to shared services.
- Underpins other Government IT initiatives such as shared data centres and secure data transfer – allowing greater sharing and reduced costs across the public sector.
- Adoption of common standards allows the development of common approaches to security, thereby reducing the costs of development, assurance and implementation and reducing the potential for breaches.
- Provide reduced procurement timescales, thanks to a more agile approach and the creation of a PSN service directory which will save time and money. In the majority of cases the procurement can be reduced from 1-2 years to 2-3 months.
- Industry benefits include: economies of scale; improved operational efficiency; and reduced overheads, which can be passed on as reduced service costs.

# WHAT PSN IS - AND IS NOT

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- ✓ PSN will create a new marketplace for network services allowing suppliers who meet the required interoperability and process standards to provide common services to many customers
- ✓ PSN will seem like one network to the end user, giving them the ability to easily reach out to other users or services (applications) anywhere across the public sector.
- ✓ PSN sets standards to ensure interoperability and security (details of these are provided later)
- ✓ PSN provides UK-wide networks and core services.
- ✓ PSN Compliant Framework Procurements will create a catalogue of commoditised network services and enable purchase of these by customer organisations through simple call-off
- ✓ PSN has the potential to benefit both public sector buyers and private sector sellers of network related services.
- ✗ PSN is not a central procurement for networks.
- ✗ PSN will not buy (or sell) customer end products or services.
- ✗ The PSN Programme is not 'buying' central services.
- ✗ PSN is not providing 'cloud' services.

# PSN AIMS AND OBJECTIVES

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## PSN Aims

- Drive new levels of collaboration between industry and the Public Sector.
- Drive savings through more intelligent procurement.
- Improve interoperability across Government, in support of shared services and flexibility.
- Create a new and innovative market place.
- Use industry approved technical, service and management standards.
- Develop the agility to cope with Government's change culture, including location flexibility.
- Align with Government's Operational Efficiency Programme, Digital Britain and other strategic ICT initiatives.
- Enable the Government ICT strategy, including Government Cloud and applications store

## PSN Objectives

- Deliver core PSN network and central services through multiple interoperable suppliers by October 2010.
- Create an innovative and responsive Network Services marketplace through delivery of procurement directory by the end of 2010.
- Migrate GSi (Government Secure intranet) and MTS (Managed Telecommunications Service) customers to PSN services by February 2012 (earlier for MTS).
- Ensure that the PSN marketplace is utilised by 80% of the public sector (approximately 4 million users) by the end of 2012.

# PSN STANDARDS

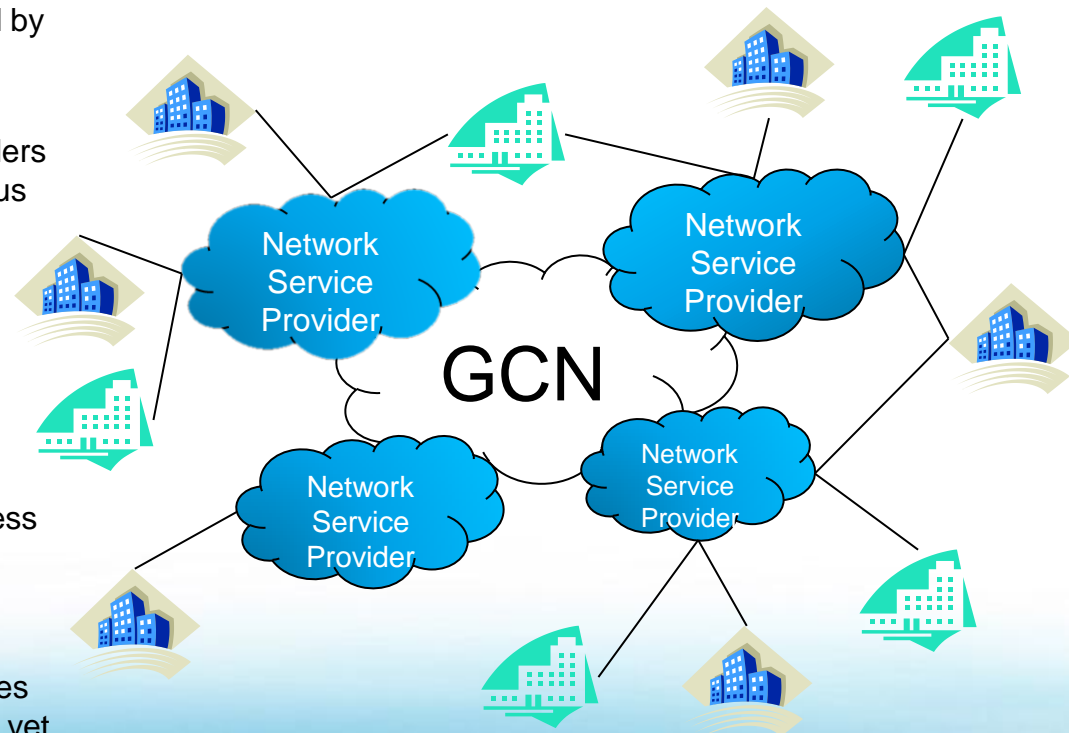
<p><b>Packet Transport Standards</b> Ensures that PSN and GCN interconnection operates</p>	<p>RFC2547 / 4364 (MPLS A-B-C), RFC3270 (Diffserv-EXP), GCN dNSP Secure Interconnect definition, IEEE 802.3a/e(6) GigE Variants</p>
<p><b>Management Process &amp; Interface standards</b> Enables Service Monitoring</p>	<p>SOAP, JSP, HTML, ITIL 2/3, ISO 20000,</p>
<p><b>Security Standards</b> Transport and Authentication</p>	<p>IPSEC v3, FIPS 140-2 L2, HMG IS1 SAML 2.0, PKI (rfc 2510), Radius, IKEv2, MD5, CESG NGN Guidance (misc), ISO 27001/2, ISMS Requirements and Good Practice, IS4 Part 1 – Keymat Management, HMG Infosec 2</p>
<p><b>Interoperability Standards</b> Ensures that basic services interoperate with PSN and enables transitions</p>	<p>SIP-I, SIP-T, H248,H323, IMAP, POP, SMTP, MIME, H.264 MPEG-4 AVC, NTP</p>
<p><b>Addressing</b> Standards and policy definitions</p>	<p>LDAP, DNS / DNSSEC, IPv4 &amp;IPv6, NAT Policy, ENUM, Public / Private Ip Address usage policy, CoS / QoS Policy, Public ASN Usage, MS AD – PKI Integration</p>

Note: this is a summary of the key standards that are used to define PSN. There are many other industry standards that apply. This is not exhaustive.

# PSN FEATURES - GOVERNMENT CONVEYANCE NETWORK (GCN)

- The Government Conveyance Network (GCN), or central highway, will be provided by the telecoms industry.
- The GCN is a single network 'mesh' formed from multiple networks provided by the private sector.
- The GCN will be used by service providers to transport transactions between various connection points.
- The GCN will be built to industry standards, any telecoms suppliers who meets the standards can supply GCN services.
- Network Service Providers will sell access services to public sector organisations, using the GCN to interconnect.
- Public sector customers can buy services from any one or more service providers yet be assured of transparent interoperability through common standards.

## The Government Conveyance Network



# PSN FEATURES – OPERATING MODEL

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## What the Operating Model Does

- Describes the technical, security, service, commercial and governance models for operation of the PSN.
- Sets out key overarching standards and requirements applying to all PSN services and PSN suppliers.
- Provides an initial specification allowing the PSN programme, customers and suppliers to deliver against their respective objectives. This specification will evolve with innovation and market changes, but only under controlled conditions.



## Approach To Refinement

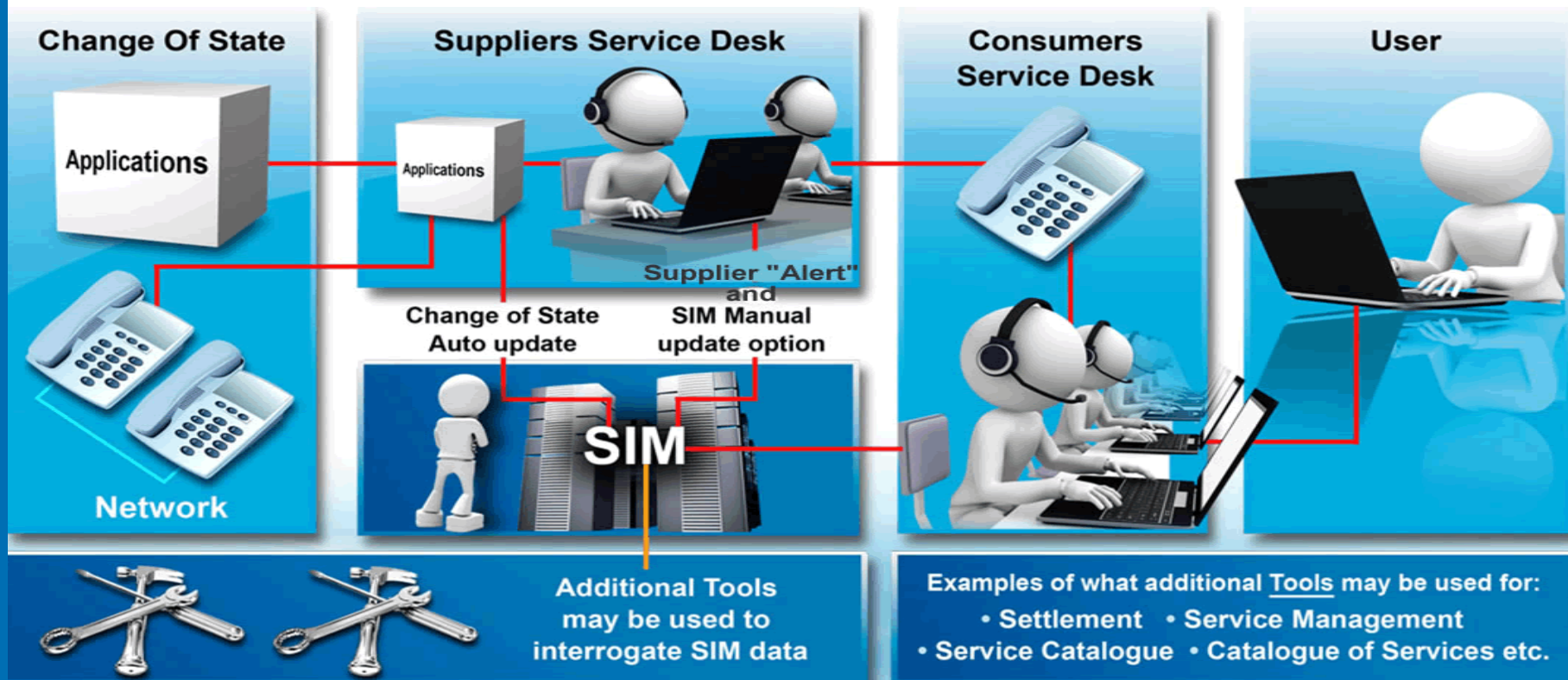
- Competitive Dialogue.
- Open consultation, driven by Cabinet Office.
- Forward development work by PSN programme work-streams.

## PSN Engagement Approach

- Actively seeking additional partners to participate in standards identification and definition through the PSN programme workstreams.
- Open collaboration via Cabinet Office website – with papers uploaded for review.
- Leading ICT companies encouraged to take part in developing the PSN, but 'brands left at the door'.

# PSN FEATURES – SERVICE INFORMATION MONITOR (SIM)

- An “Information Repository” allowing effective management of the PSN, used by the Service Providers as a reference in disputes over the responsibility of an Incident or Problem
- Provides an appropriate end-to-end view with near real-time service status information of service information and service inter-dependency
- All suppliers provide input to the SIM by means of their Operational Support System
- SIM is **NOT** responsible for resolving Incidents, but informs Service Providers of significant events in progress and assists in identifying the root cause
- Capable of supporting multiple SIM instances (potentially one per confidentiality impact level)



# PSN DEPENDENCY - AUTHENTICATION AND AUTHORISATION

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- The ability to interconnect is dependant on maintaining the trust between networks whilst enabling measures to improve usability (e.g. single sign-on).
- Services operating across the PSN must be able to authenticate users, devices or applications wishing to access the service to:
  - Provide Inter organisation access controls without excessive proliferation of Virtual Private Networks (VPNs)
  - Allow interaction with crypto management mechanisms to support IPSEC for IL3 and IL4
  - Provide SIM access controls
  - Ensure that PSN Core capabilities enable applications in a predictable, consistent and efficient way
  - Enable 'nomadity' (users ability to access their 'services' regardless of physical location)
- Common standards for authentication will allow recognition without complex, expensive, time consuming and (often) inaccurate translation mechanisms.
- Building authentication in at this level will be cheaper and more agile than network engineering at the vpn level



# WORKING HARD TO BUILD THE PSN

- Five specialist workstreams, with volunteer industry and public sector resources, developing PSN policy and standards.
- Outputs delivered include:
  - PSN Operating model
  - First draft Code of Connection and Code of Interconnection
  - Transition planning approach
  - Initial Technical and Service Management standards
- Planned live service deliverables include:
  - Full PSN Design baseline – Q3 2009
  - Service Information Monitor (SIM) – Q3 2010
  - Government Conveyance Network – Q2 2010
  - PSN Services Framework – Q3 2010
  - MTS Transition (complete) – Q4 2011
  - GSi Transition (complete) – Q1 2012



“ *The digital revolution is changing all our lives beyond recognition.* ”

**Prime Minister Gordon Brown**



# PSN NETWORK SERVICES PROCUREMENT

- The Government has launched an initial collaborative procurement, formally aligned to delivery of the PSN vision.
- The PSN programme is using the expertise of Buying Solutions to execute this initial procurement to the PSN specification and timescale.
- This will establish:
  - A common network and core services providing interconnectivity for public sector organisations across the UK;
  - a contracting framework allowing for consumption by any public sector organisation; and
  - an initial 'directory' of compliant voice and data services capable of operating across the PSN – enabling customers to select successor services to the current Government Secure Intranet (GSI) and Managed Telephony Service (MTS) contracts.



# PSN – WHERE NEXT

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- The world is constantly changing, and communications is one of the fastest changing industries in it.
- Following release of initial capabilities PSN will continue to evolve.
- There will not be a PSN 2 or PSN 3, rather there will be constant, market led but government regulated, innovation and evolution.
- Amongst the concepts which will be considered in the near future are:
  - Integration of technical services into business services – i.e. business services which come with communications ‘wrapped in
  - Context and federation services for networks – allowing true user mobility
  - Full transition to IPV6 – reducing cost and carbon footprint
  - Secure Wireless Networks – cheaper installation and change, greater mobility

