Connecting Hong Kong Government to Next-generation Internet

APRICOT-APAN 2011, Hong Kong
IPv6 Transition Conference
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Office of the Government Chief Information Officer

Agenda

Support of IPv6 Deployment

Government Central IT Infrastructure and Services

IPv6 Implementation

Experience Sharing

Benefits

Support of IPv6 Deployment

Specification

Facilitation

Strategy

Lead by example

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2008 Digital 21 Strategy

Promoting Advanced Technology and Innovation

Next-generation Internet

Address capacity of IPv4 will soon be exhausted

IPv6 will generate a new horizon of business opportunities for ICT and other sectors

The Government will take the lead in migrating to IPv6

Network Communications and Procurement Specifications

- Inclusion of both IPv4 and IPv6 as recommended specifications for network communications in the Interoperability Framework

- Requirement of IPv6 support in centrally organised contracts for providing network equipment to Government departments
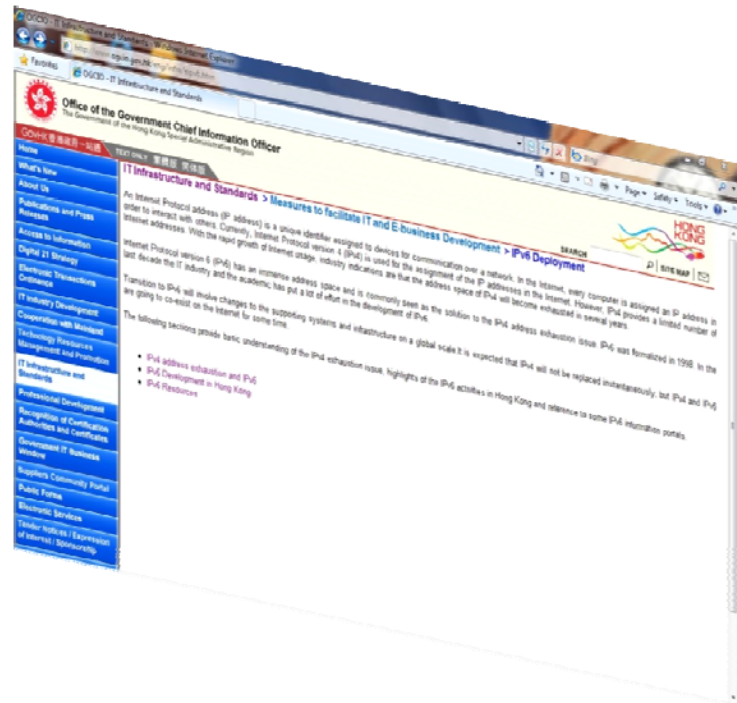
Industry and Government Internal Facilitation

Industry and Public

- IPv6 Forum Hong Kong Chapter
- OGCIO website
  - IPv6 Deployment

Industry and Government Internal Facilitation

● Industry and Public

- ▫ IPv6 Forum Hong Kong Chapter
- ▫ OGCIO website
  - • IPv6 Deployment

● Government Departments

- ▫ OGCIO IT Information Station
  - • IPv6 Transition Preparation

Industry and Government Internal Facilitation

- ## Industry and Public
  - IPv6 Forum Hong Kong Chapter
  - OGCIO website
    - IPv6 Deployment

- ## Government Departments
  - OGCIO IT Information Station
    - IPv6 Transition Preparation
  - Knowledge Management
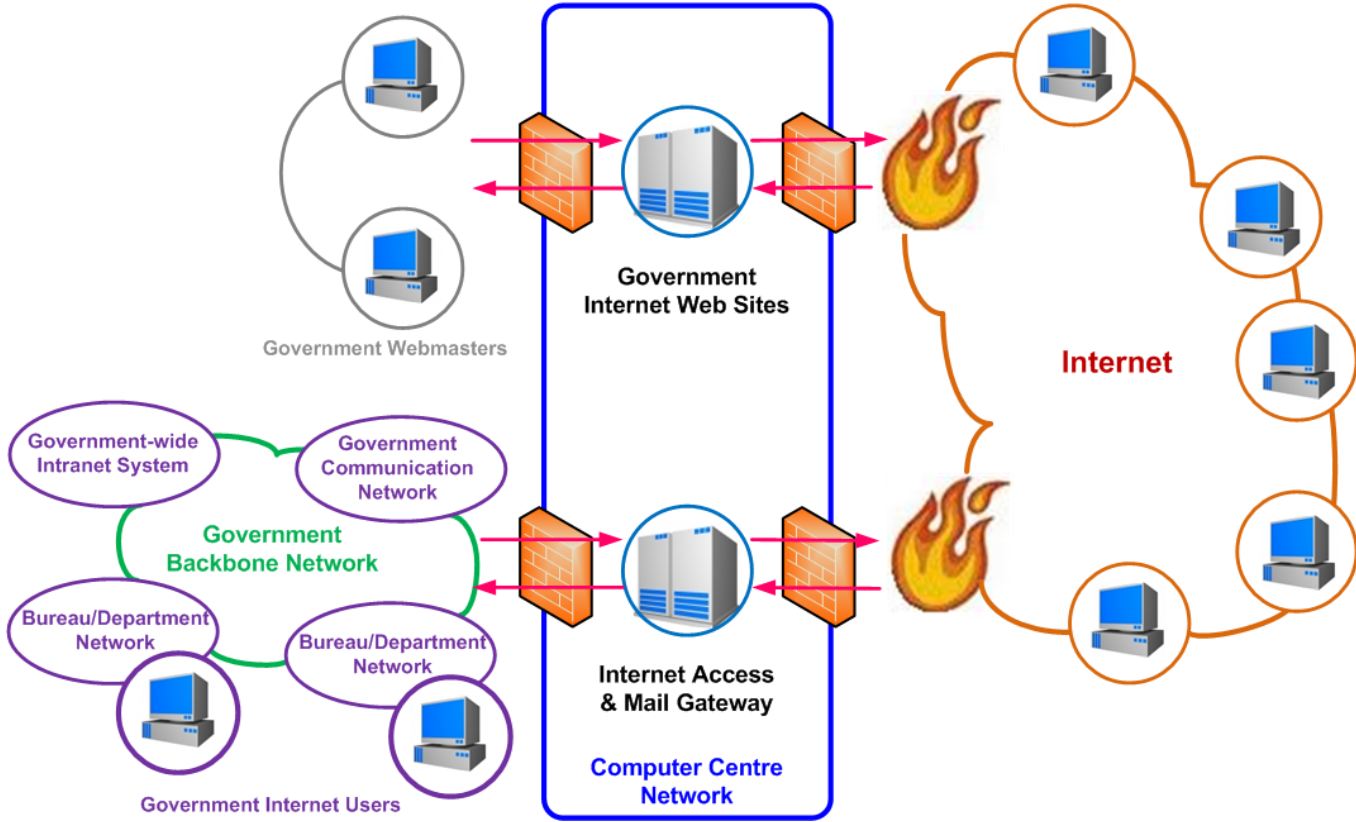   - Training, experience sharing
    - Blog, discussion forum

Lead by Example
Government Central IT Infrastructure

Government Central Internet Gateway

Government Central Internet Services

Domain Name Service

- > 1 000 web domains
- > 200 mail domains

Web Hosting Service

- > 240 websites
- > 160 million page views per month

Internet Mail Service

- > 46 000 users
- > 4 million e-mails per month

Internet Access Service

- > 38 000 users
- > 2 000 million web page requests per month

Technical Study for IPv6 Implementation

Review of existing network infrastructure and application architecture

Design of new network infrastructure, application architecture, network security, administration, operation and support
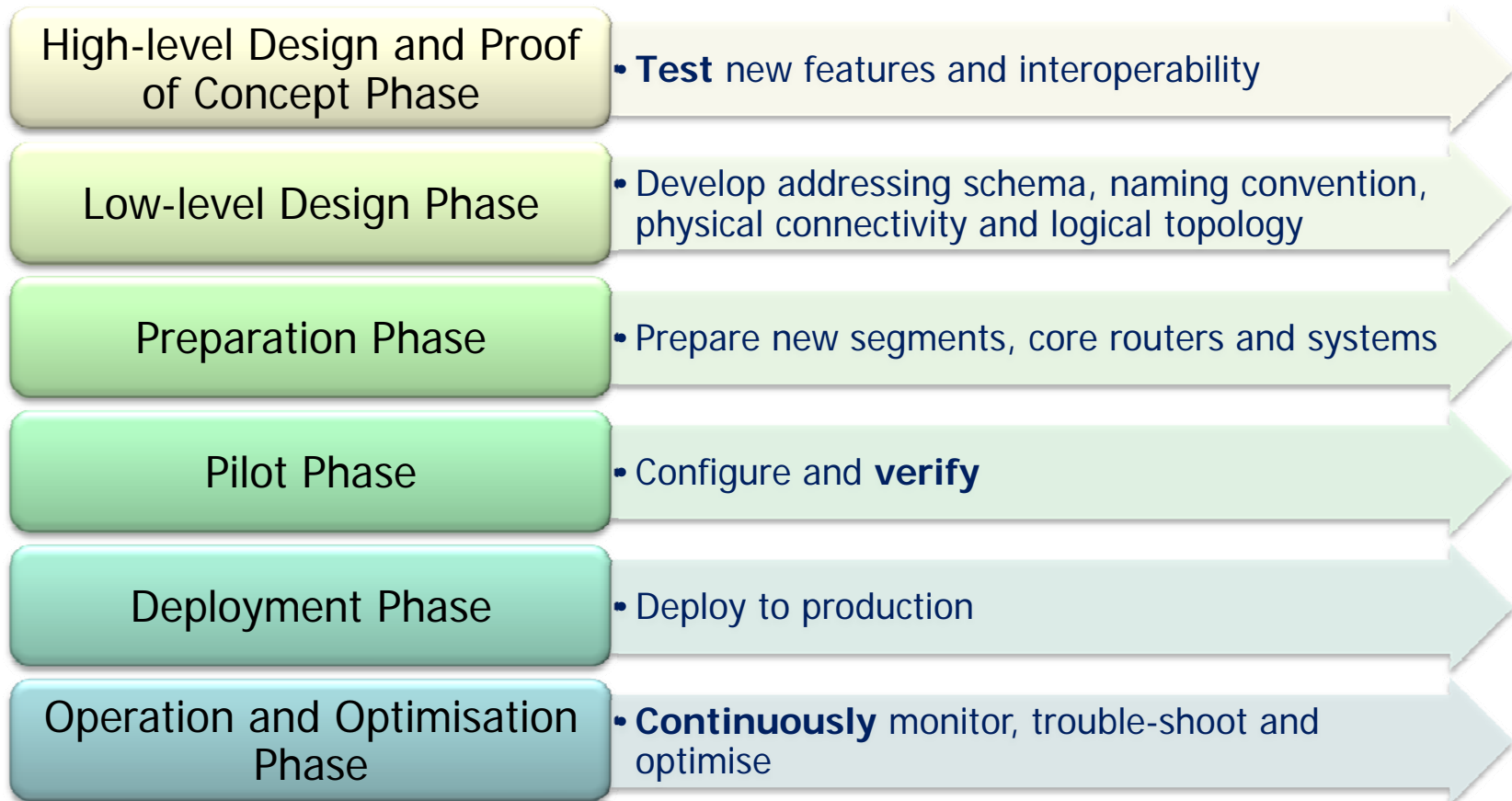
Implementation **approach** and **roadmap**

Best practices for implementation and on-going network management

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Multi-phased Implementation Strategy

| High-level Design and Proof of Concept Phase | • **Test** new features and interoperability |

| Low-level Design Phase | • Develop addressing schema, naming convention, physical connectivity and logical topology |

| Preparation Phase | • Prepare new segments, core routers and systems |

| Pilot Phase | • Configure and **verify** |

| Deployment Phase | • Deploy to production |

| Operation and Optimisation Phase | • **Continuously** monitor, trouble-shoot and optimise |

Implementation Approach

Procure IPv6 ready equipment during natural technology replacement and capacity enhancement

Adopt dual stack approach as far as possible

Activate IPv6 by actual user demand

Focus on external service provision instead of internal infrastructure adoption

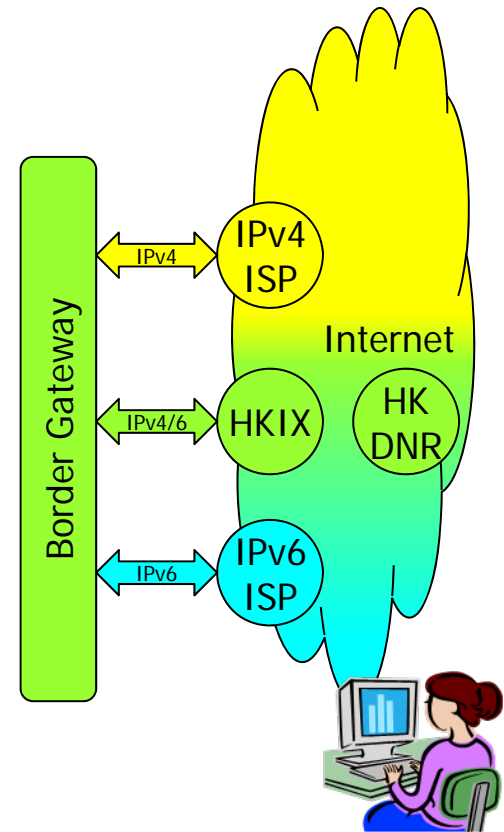Implement by services, phases, and data centres

Implementation Roadmap

Supporting Infrastructure

- Internet connection
- Computer Centre Network

External Services

- Domain Name System
- Web Hosting System
- Internet Mail System
- Internet Access System

Internal Services

- Government Backbone Network
- Government Intranet System

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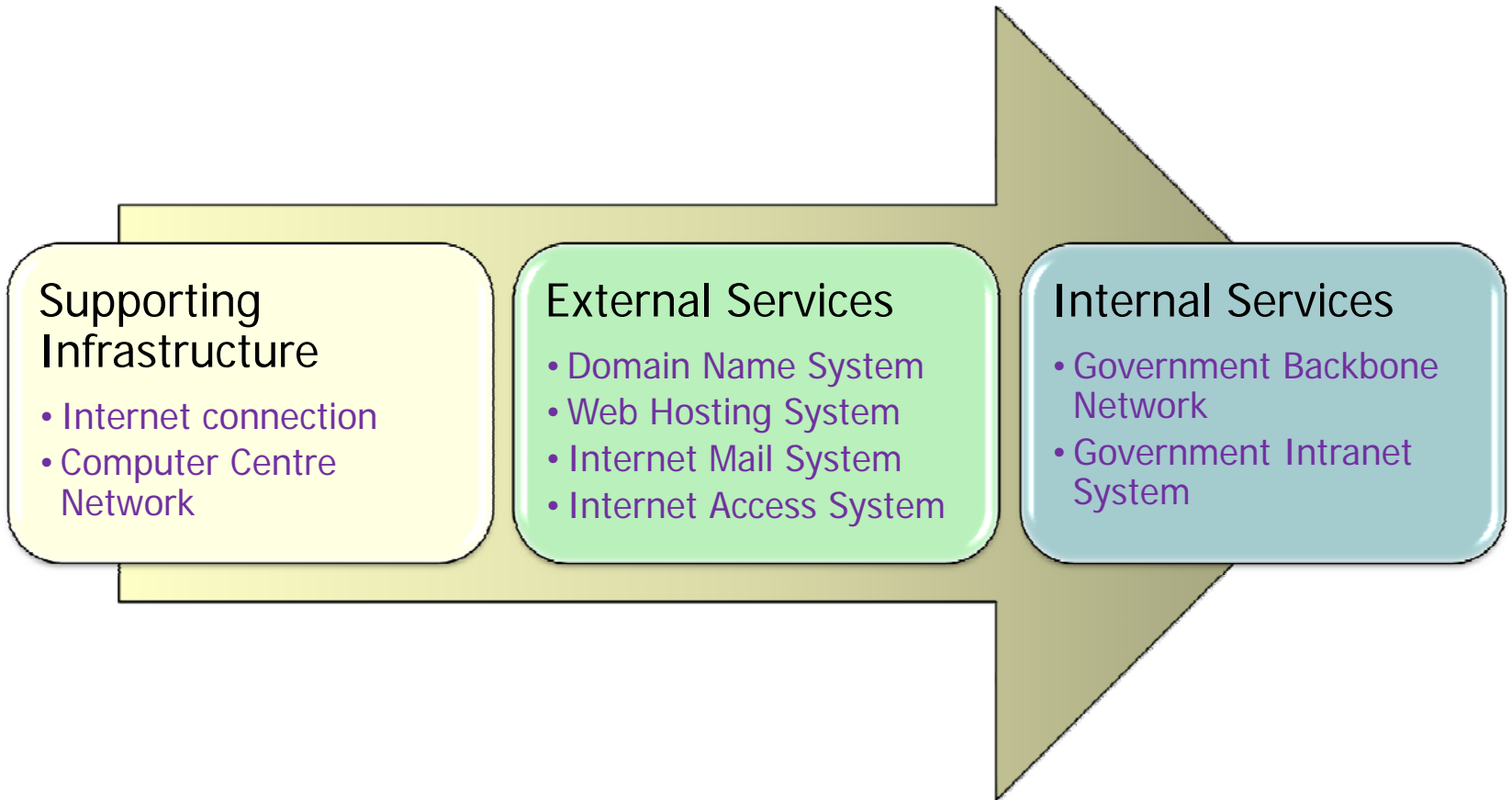
Implementation   Internet Infrastructure

Border Gateway

Department Network

IPv4
ISP

IPv4

HKIX

IPv4/6

IPv6
ISP

IPv6

Internet

HK
DNR

Implementation   Network Infrastructure
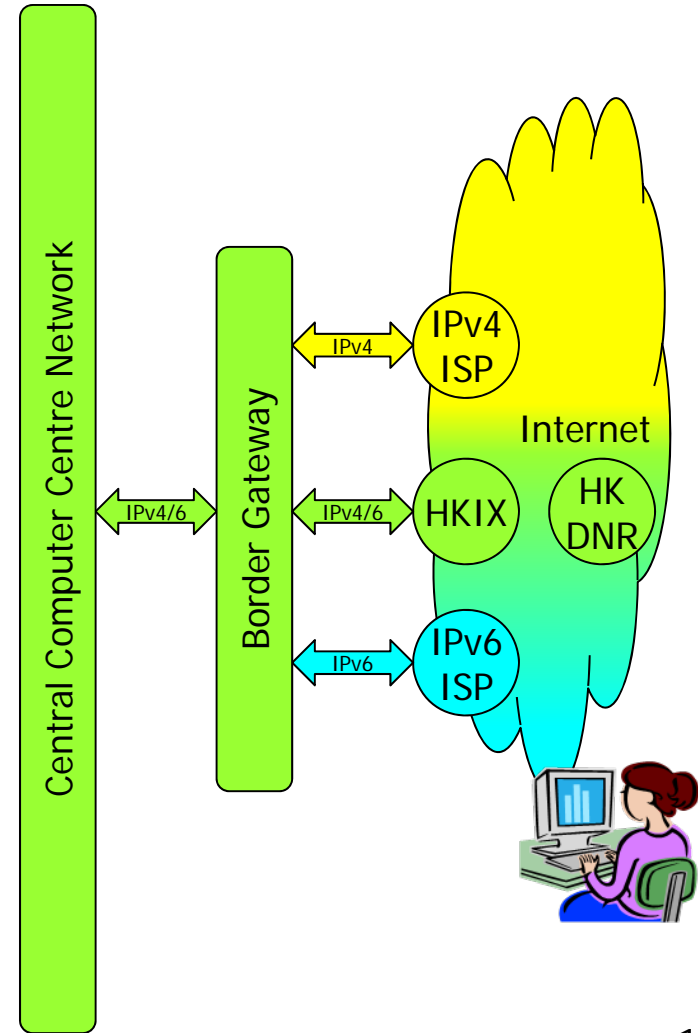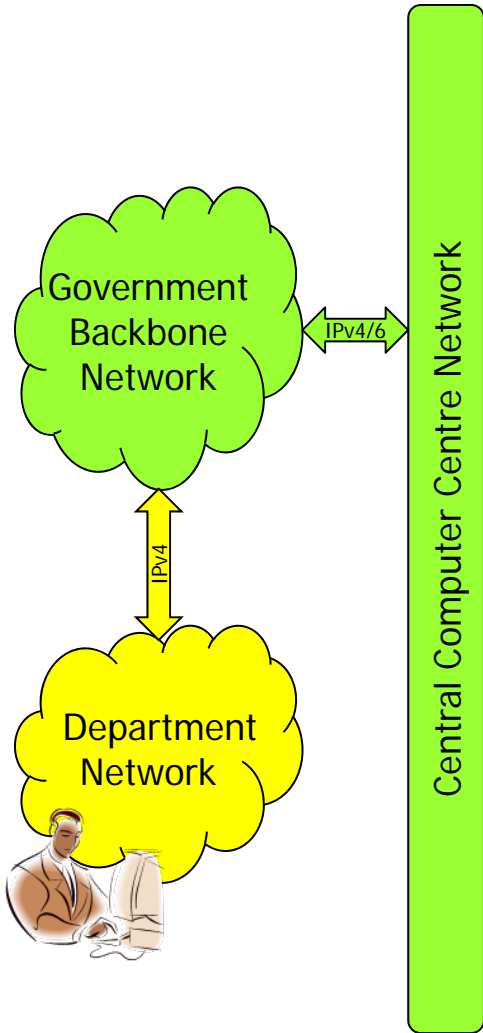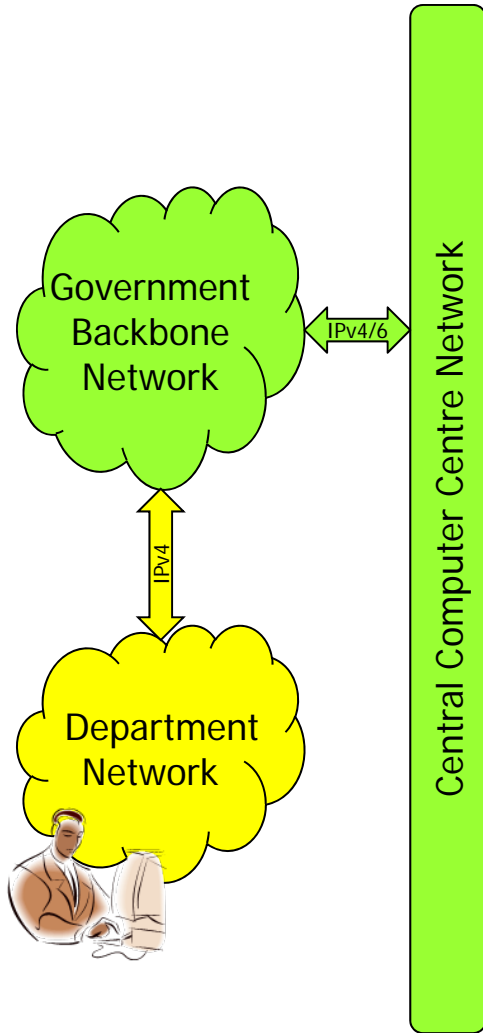
Implementation *Domain Name Service*
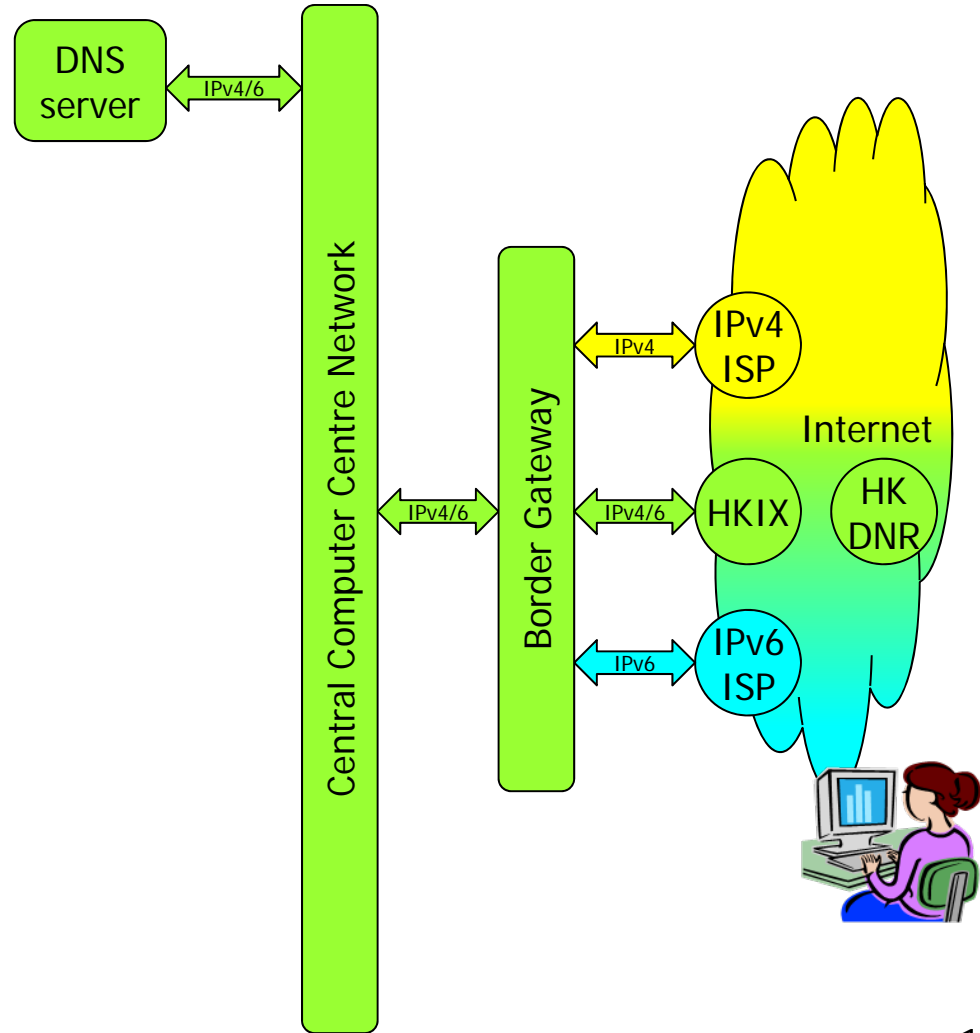
Implementation   Web Hosting Service
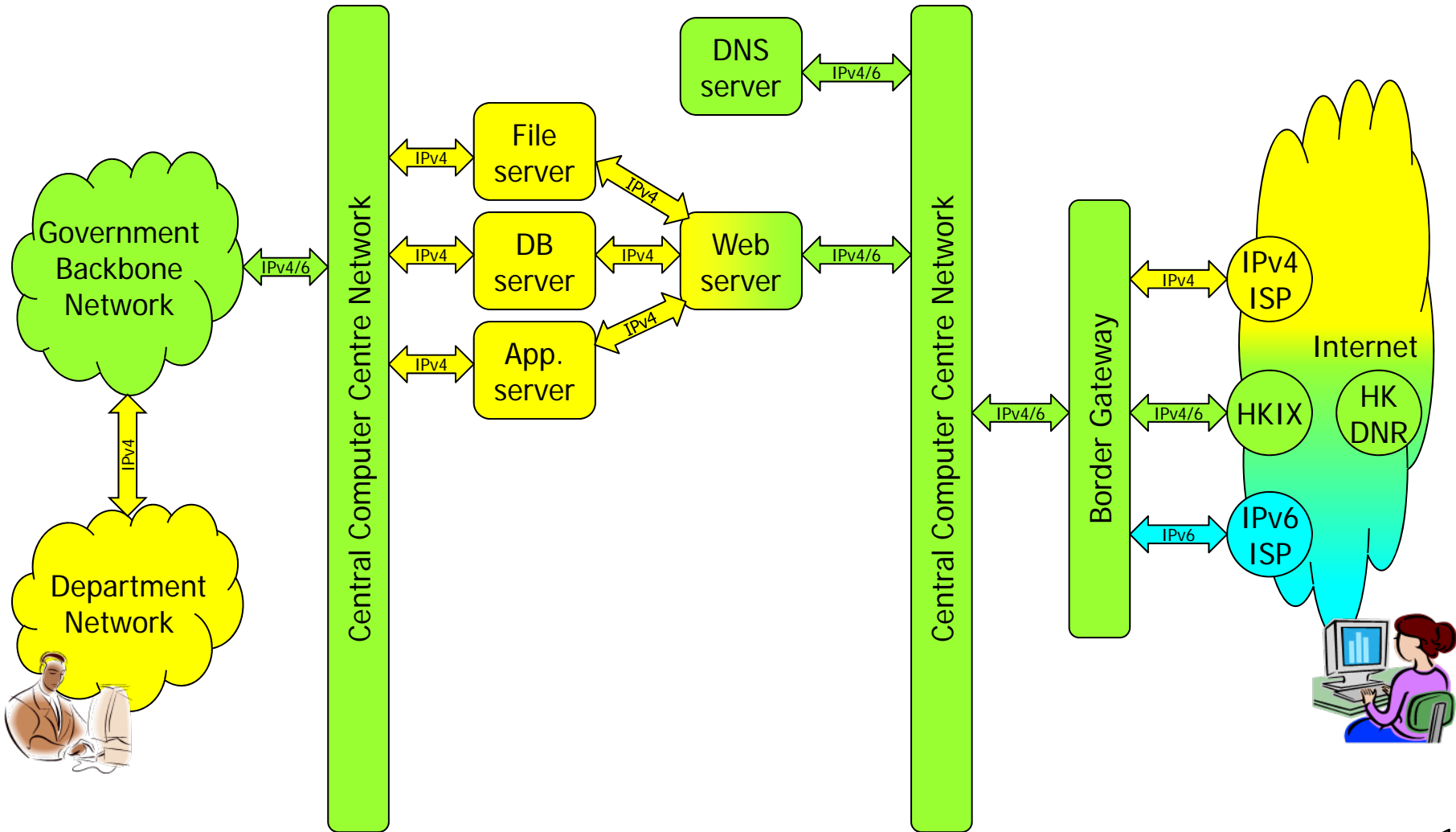
Implementation *Internet Mail Service*
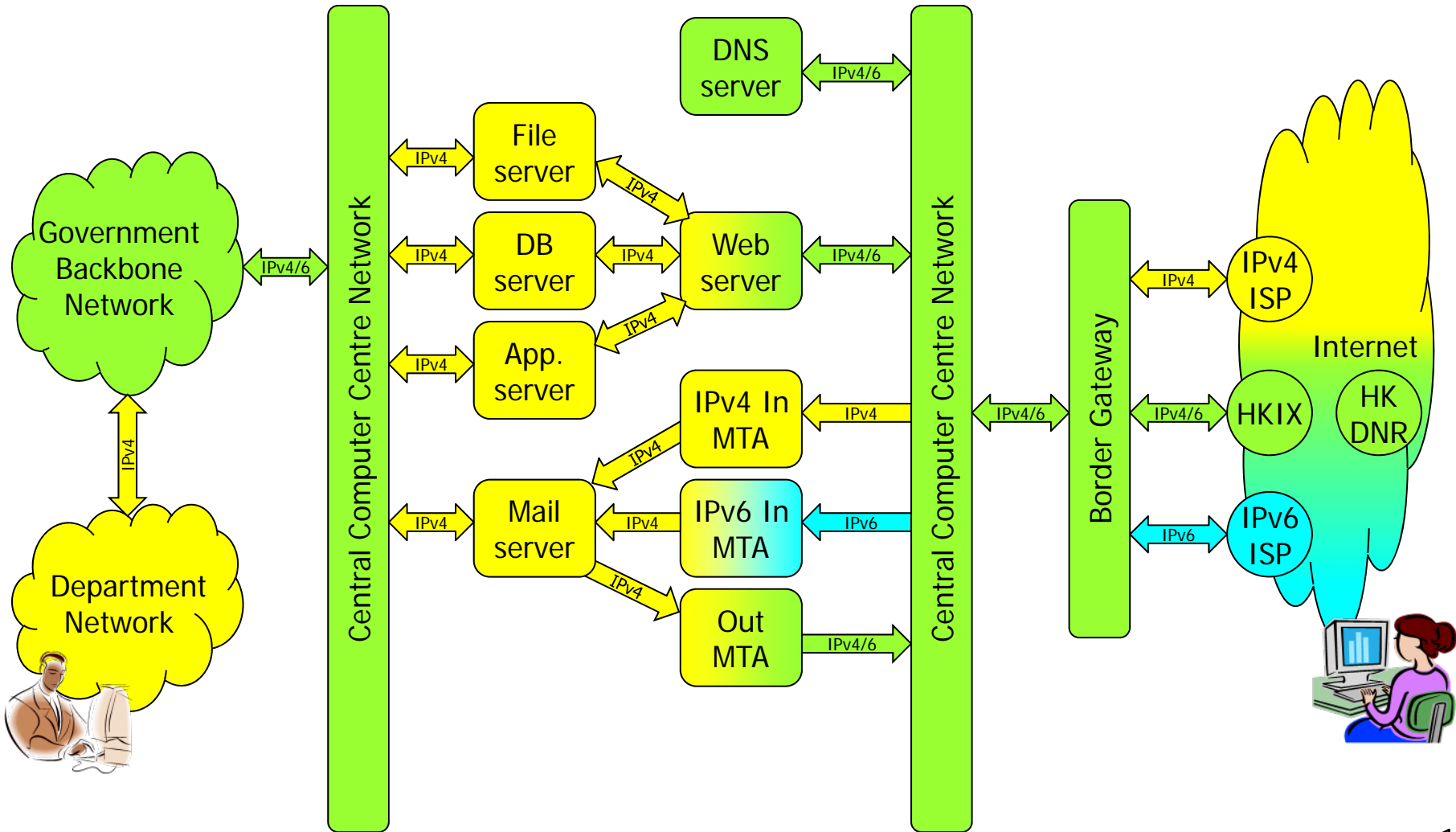
Implementation   Internet Access Service
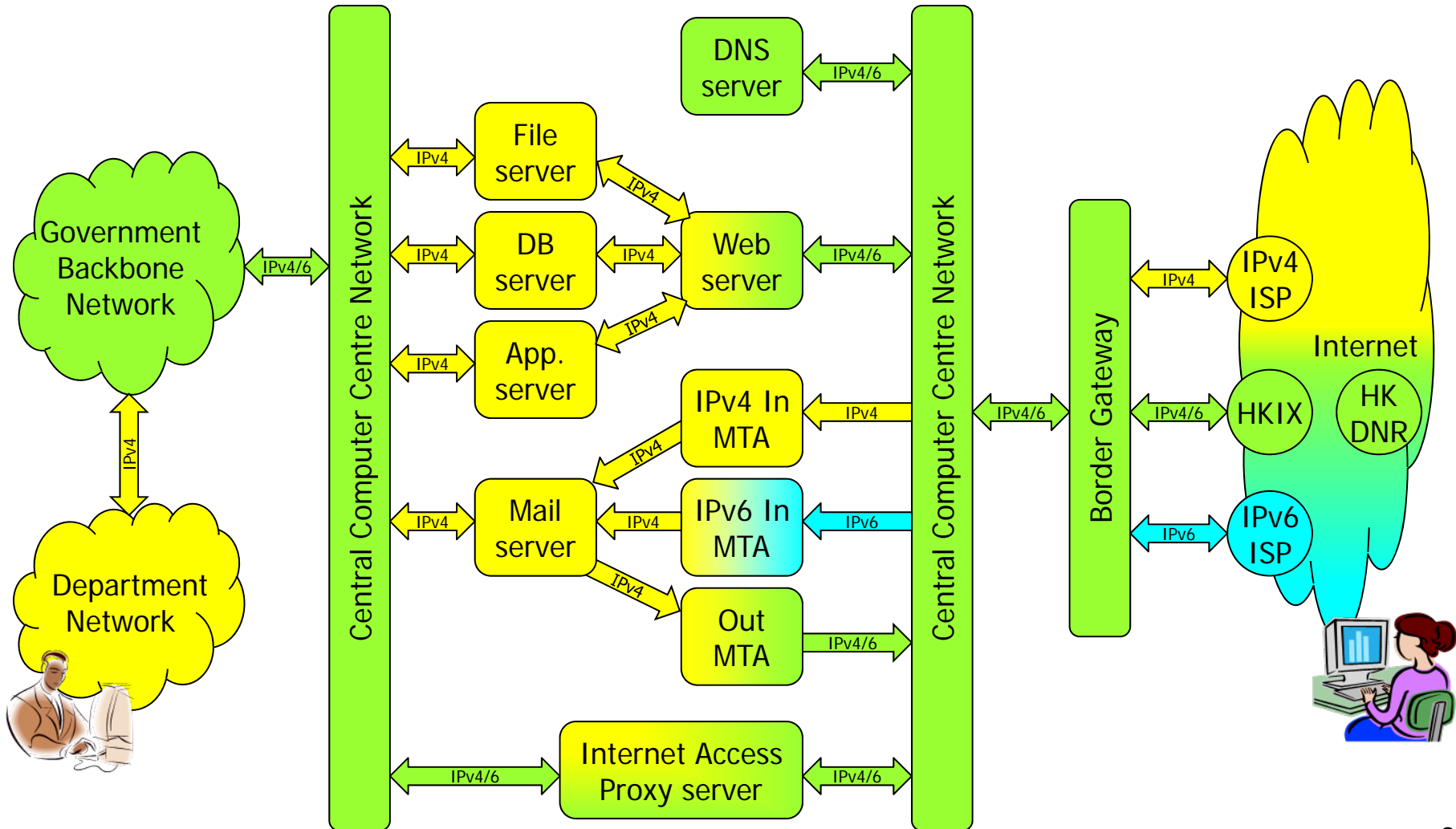
Implementation *Future Optimisation*

Experience Sharing

Project Management

| Network and System Management		Application System
Network	Server	
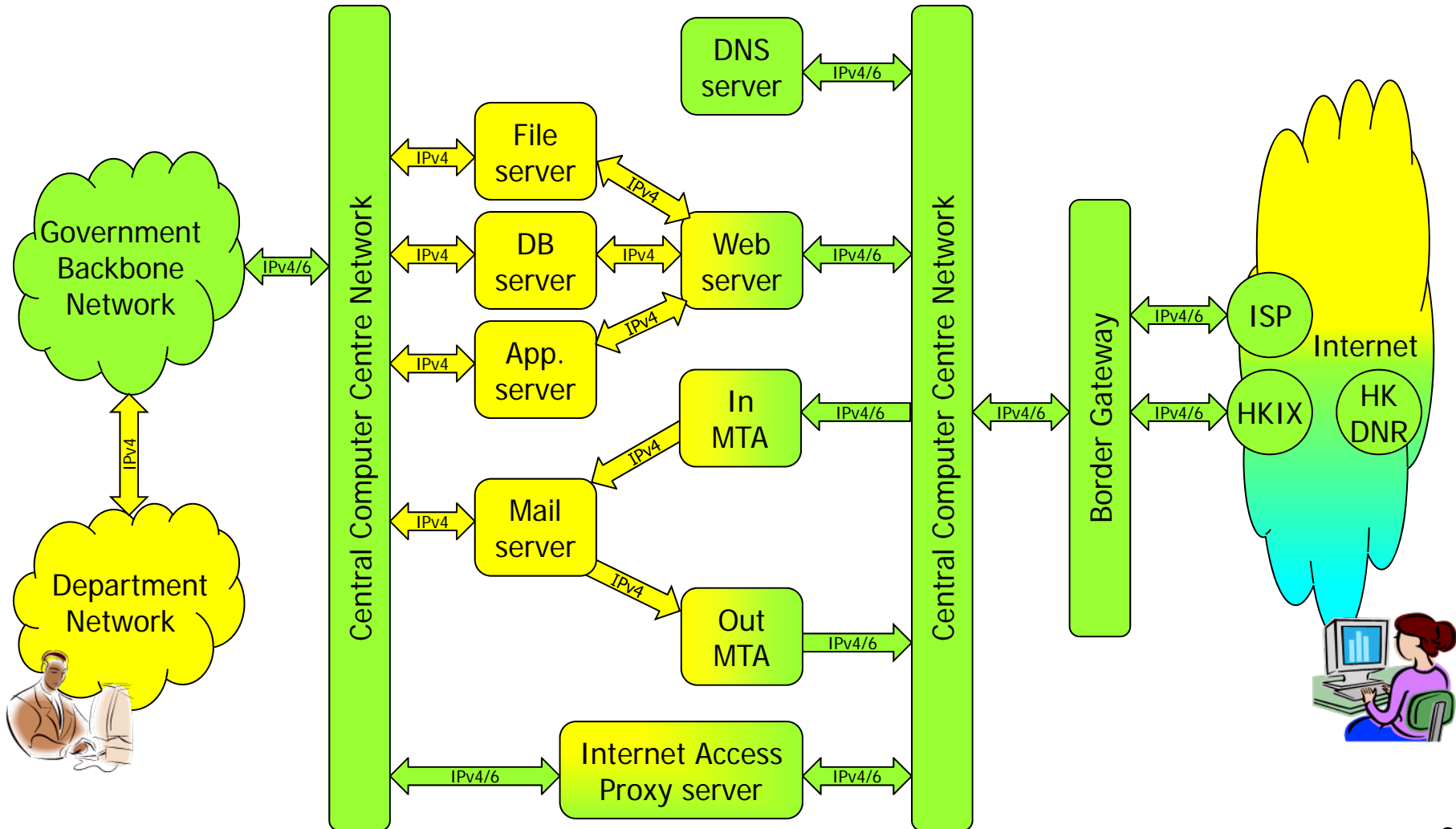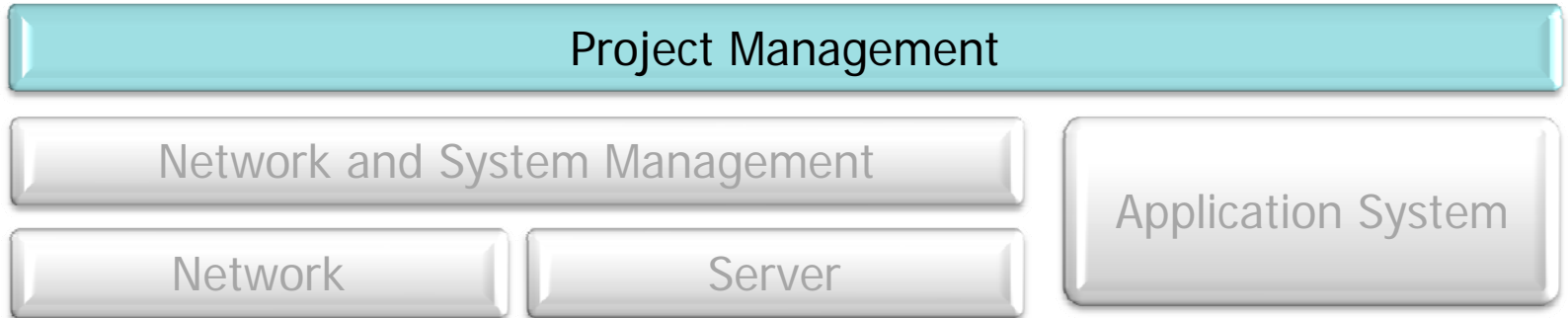
Schedule	• plan early for IPv6 deployment
Scope	• focus on external service provision, then internal
Strategy	• start simple, grow incrementally
Assessment	• review IPv6 support of current infrastructure
Training	• empower implementation and support staff

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Experience Sharing

Project Management	
Network and System Management	
Network / Server	Application System
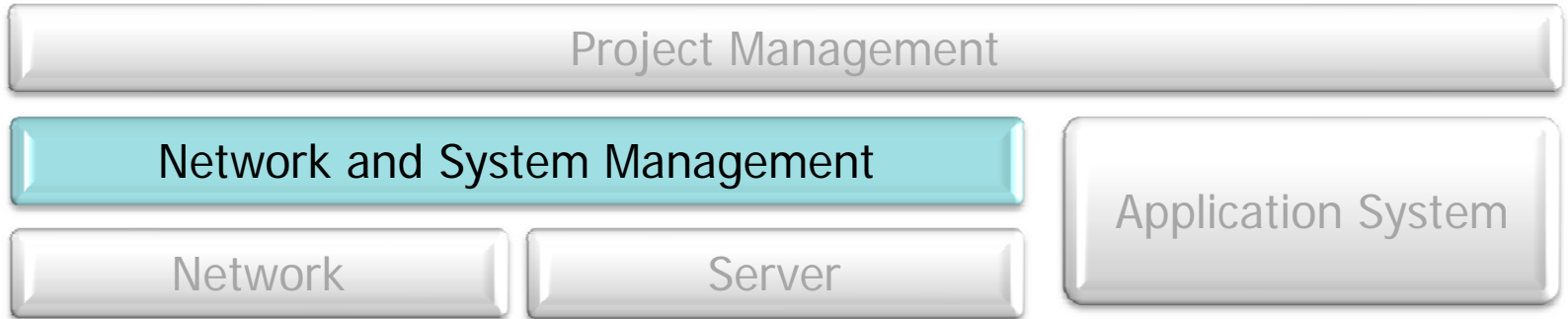
- ✦ Security considerations
- ✦ Readiness of system / network management tools
- ✦ Extra efforts on administration and trouble-shooting for both IPv4 and IPv6 configurations

Experience Sharing

Project Management		
Network and System Management		Application System
Network	Server	

- Ready IPv6 support for backbone network equipment and infrastructure with first priority

- Aware of the scarcity and nature of currently available ISPs with IPv6 support

Experience Sharing

Project Management		

| Network and System Management		
Network	Server	Application System

- Aware of the product functions supported for IPv4 and IPv6 may be different

- Whether statistics and reporting functions can accurately interpret IPv6 access logs

- Testing of IPv6 support through different perspectives

Experience Sharing

Project Management

Network and System Management	Application System
Network	Server	
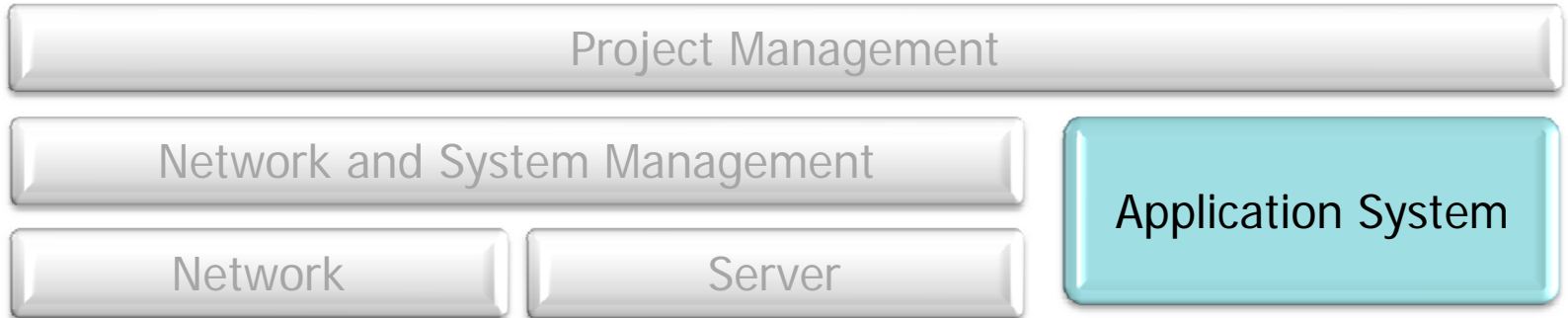
+ Whether applications are making use of IP address or assuming the IP address format

+ IP address independence

Benefits

Connecting government services and users to the Next-generation Internet

Opportunities for future types of government applications and services

Successful example and experience gained for reference

Transparent to government users and the public

Benefits

C onnecting government services and users to the Next-generation Internet

O pportunities for future types of government applications and services

S uccessful example and experience gained for reference

T ransparent to government users and the public

Thank You

Reference URLs:
OGCIO
        www.ogcio.gov.hk
Digital 21 Strategy
        www.ogcio.gov.hk/eng/digital/edigital.htm
Interoperability Framework
        www.ogcio.gov.hk/eng/infra/eif.htm
IPv6 Deployment
        www.ogcio.gov.hk/eng/infra/eipv6.htm

E-mail: ckng@ogcio.gov.hk

(supporting both IPv4 and IPv6)

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