14th Workshop – Friday 9th February 2018
House of Commons

EURECA & Defra UnITy programme

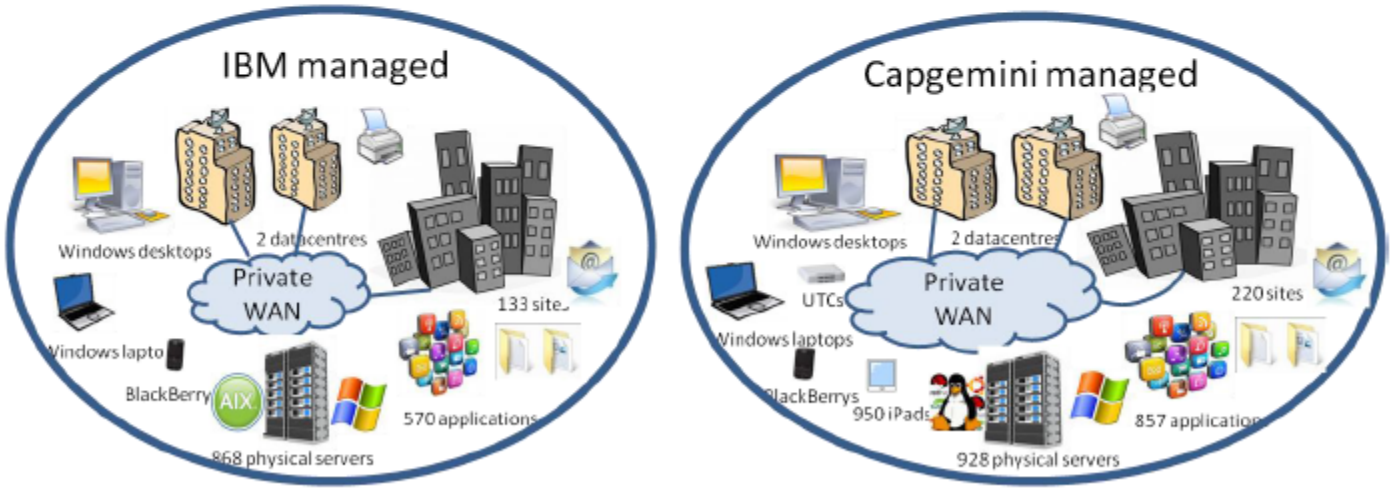
Bob Crooks

Sustainable ICT lead Defra

Why we need UnITy

Two different and incompatible ICT estates:

Costly – inefficient dual management and infrastructure
Hard to manage - multiple devices (e.g. laptops) to work across Defra
Duplication of effort - difficult to get field force working together
Slow, stifles innovation - current contracts work against agile change
Prevents collaboration - can't access data between estates

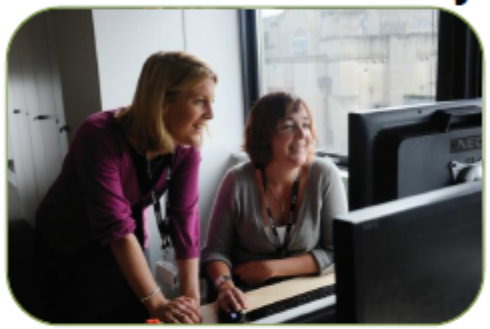


UnITy's Vision

One Defra

VFM

Reliable and friendly

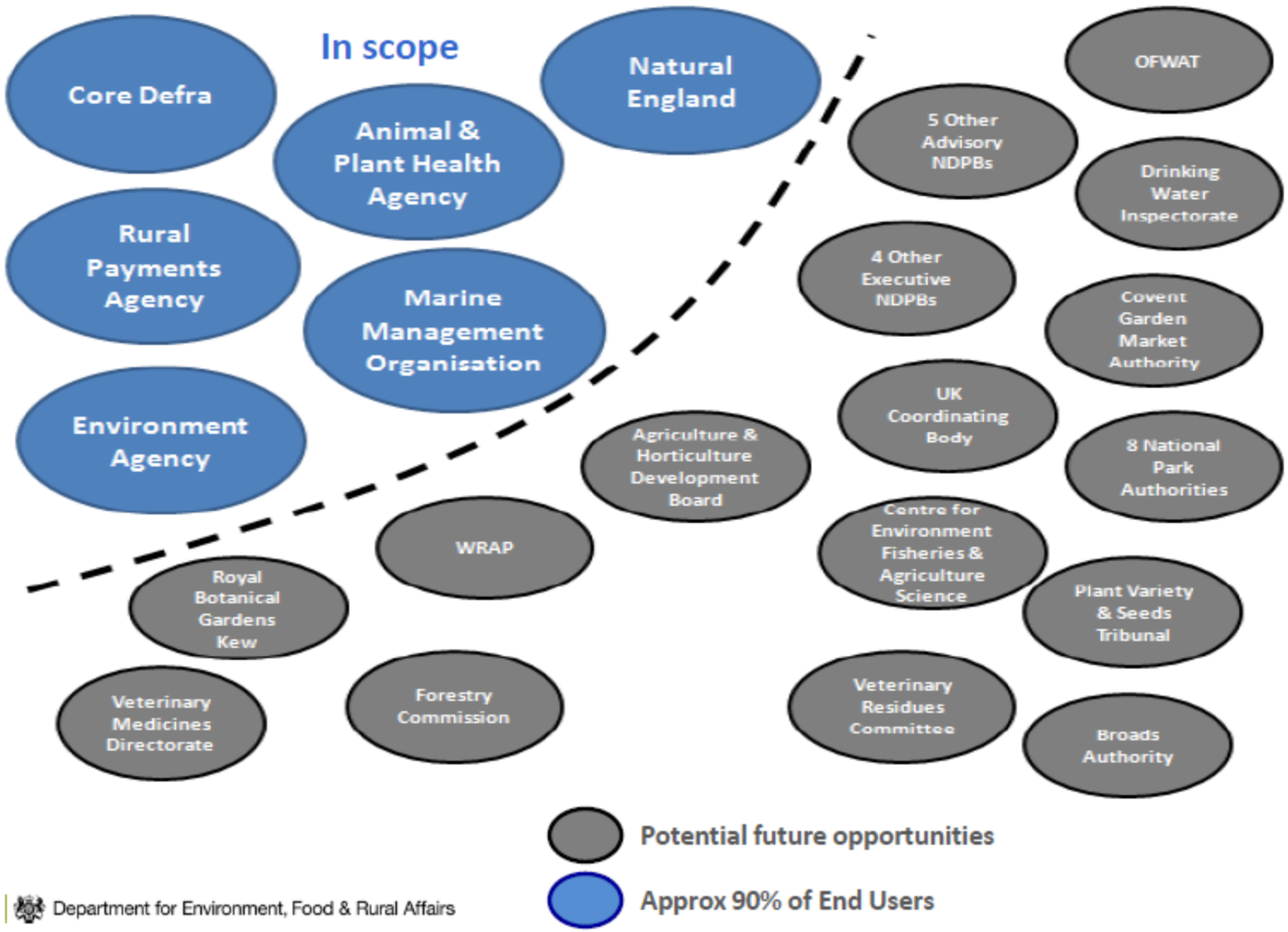


Hosted sustainably

Connected

Manage suppliers well

UnITy's scope across Defra



Focus of UnITy workstreams

Hosting & Applications Management

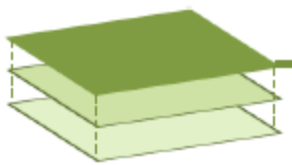
Ensuring continued support for legacy line of business applications via new hosting contracts.

End User Environment

Enabling current desktops and mobile devices to be replaced with more cost effective and flexible options

Service Management

Developing specialist capability that integrates services delivered by a multi-supplier environment.



Systems Integration & Platforms

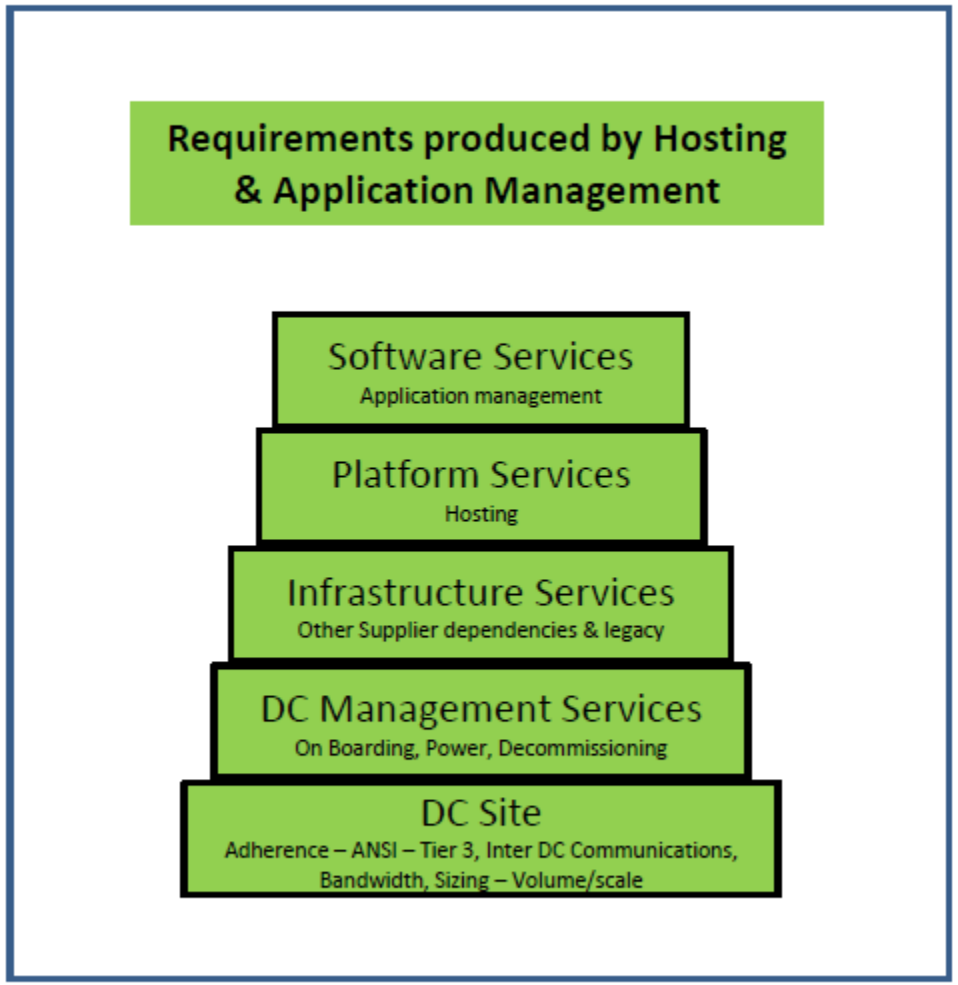
Providing common, strategic platforms to improve collaboration and data sharing.

Connectivity

Enabling flexible and reliable connectivity through new, more cost effective services.

High Level Requirement Categories

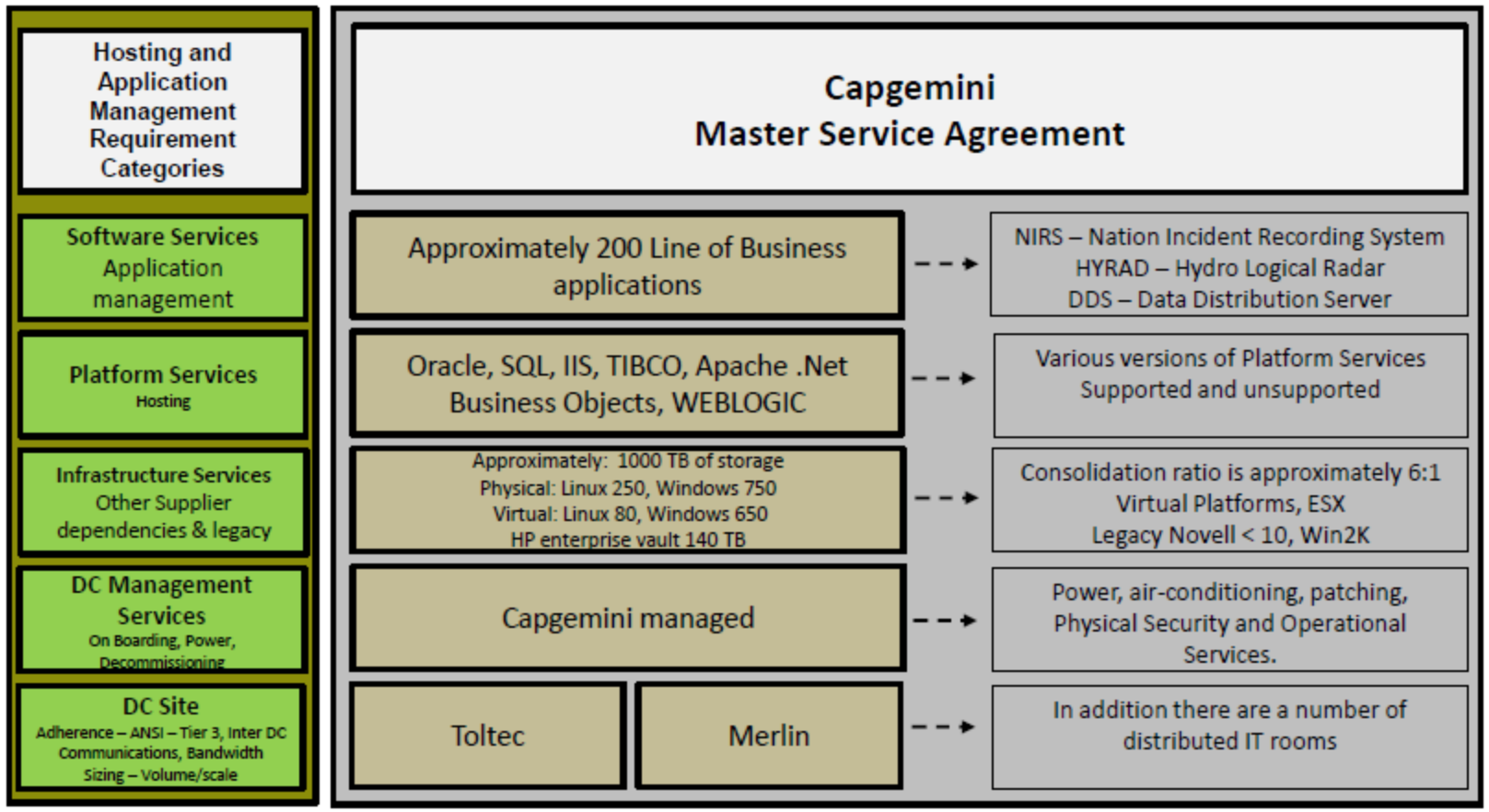
The Hosting and Application Management procurement consists of five service categories. Requirements will be produced under each category.



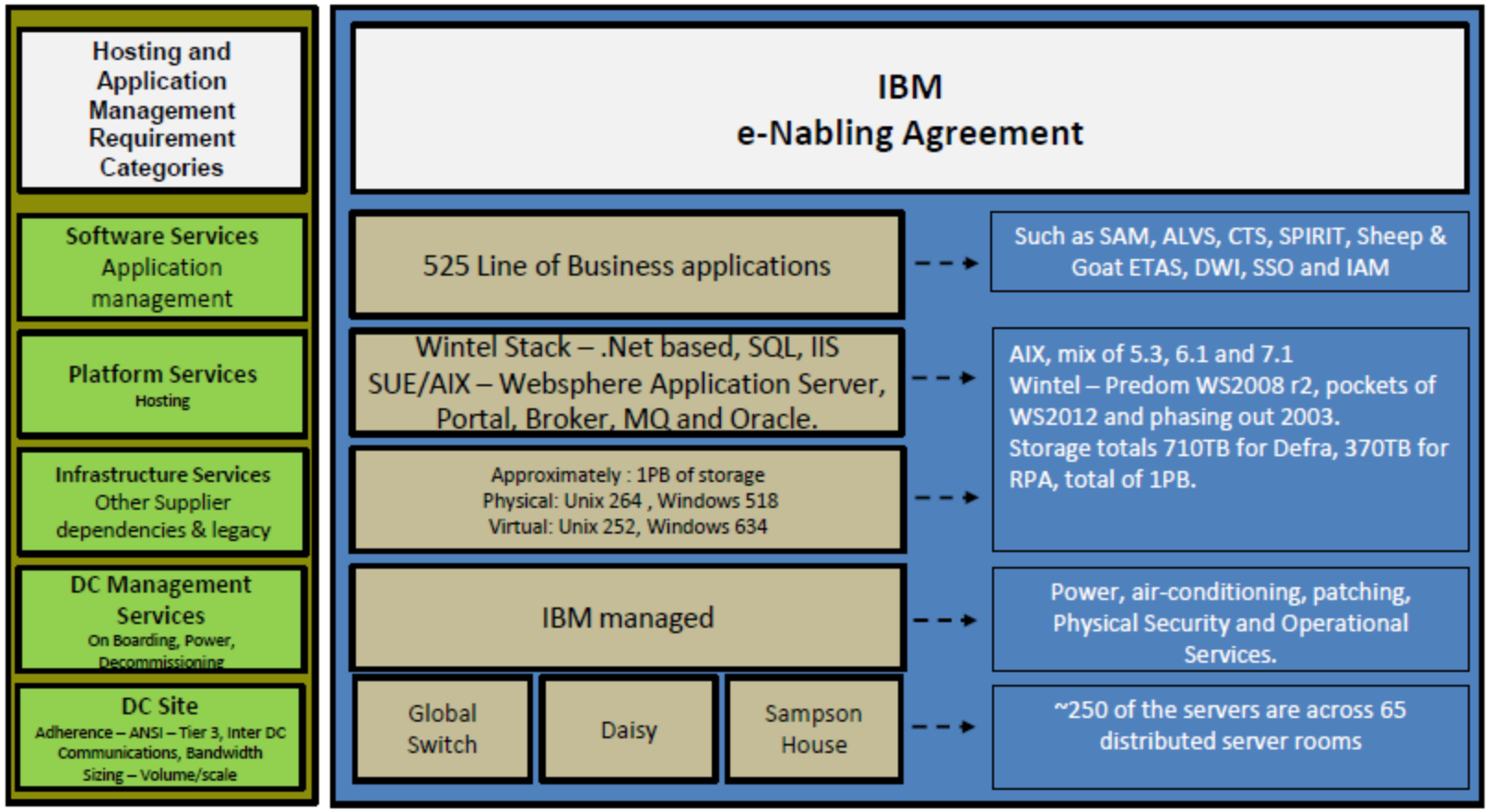
Current Mode of Operation (CMO)

- Existing Prime Contracts
  - Environment Agency, Capgemini Master Service Agreement.
    - Capgemini provides services to the Environment Agency(EA)
    - The EA also provides some application services to other organizations such as Defra, Scottish Environment Protection Agency and the Met Office.
    - The services are provided to around 10,500 users.
    - The existing service is for the end to end ICT delivery, from DC's to App
  - Defra, IBM e-Nabling Contract
    - IBM provides services to core Defra, the Rural Payments Agency, Natural England, the Marine Management Organization and the Animal and Plant Health Agency.
    - In total 10,000 users.
    - The existing service is for the end to end ICT delivery, from DC's to App
- UnITy will replace these existing prime contracts with a new disaggregated supply chain.

CMO Environment Agency



CMO Defra


Hosting and Application Management Requirement Categories
Software Services Application management
Platform Services Hosting
Infrastructure Services Other Supplier dependencies & legacy
DC Management Services On Boarding, Power, Decommissioning
DC Site Adherence – ANSI – Tier 3, Inter DC Communications, Bandwidth Sizing – Volume/scale
IBM e-Nabling Agreement
525 Line of Business applications
Such as SAM, ALVS, CTS, SPIRIT, Sheep & Goat ETAS, DWI, SSO and IAM
Wintel Stack – .Net based, SQL, IIS
SUE/AIX – Websphere Application Server, Portal, Broker, MQ and Oracle.
Approximately : 1PB of storage
Physical: Unix 264 , Windows 518
Virtual: Unix 252, Windows 634
AIX, mix of 5.3, 6.1 and 7.1
Wintel – Predom WS2008 r2, pockets of WS2012 and phasing out 2003.
Storage totals 710TB for Defra, 370TB for RPA, total of 1PB.
IBM managed
Power, air-conditioning, patching, Physical Security and Operational Services.
Global Switch
Daisy
Sampson House
~250 of the servers are across 65 distributed server rooms

Raising Sustainability Expectations

Sustainability is important to us - we already have:

- Participant status for all our data centres in the EU Code of Conduct for Energy Efficient Data Centers
- PUEs
  - Defra DC1 => 1.47
  - Defra DC2=> 1.58
  - EA DC1=> 1.2
  - EA DC2=> 1.8
- High levels of server utilisation
- Energy reporting

Way forward and expectations

- Sampson House lift and shift to Crown Hosting (ARK)
- Procure hosting service for other DCs using EU OJEU Negotiated proc
- Set PUE target of 1.5
- EURECA offered innovation in procurement to increase energy efficiency

Sample of Data provided to EURECA – EA

Make	Model	Version	Item	RAM amount	CPU Count	Core Count	Status	System Role	Additional Information	Site
Hewlett Packard	ProLiant	BL460c G6	Server	12288	1	2	Deployed	Linux Category C	SUSE Linux Enterprise Server 10 (x86_64) - Service Pack 3	UK-BSO-TOLTEC
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Hewlett Packard	ProLiant	BL460c G6	Server	40960	1	2	Deployed	Linux Category C	SUSE Linux Enterprise Server 10 (x86_64) - Service Pack 3	UK-BSO-TOLTEC

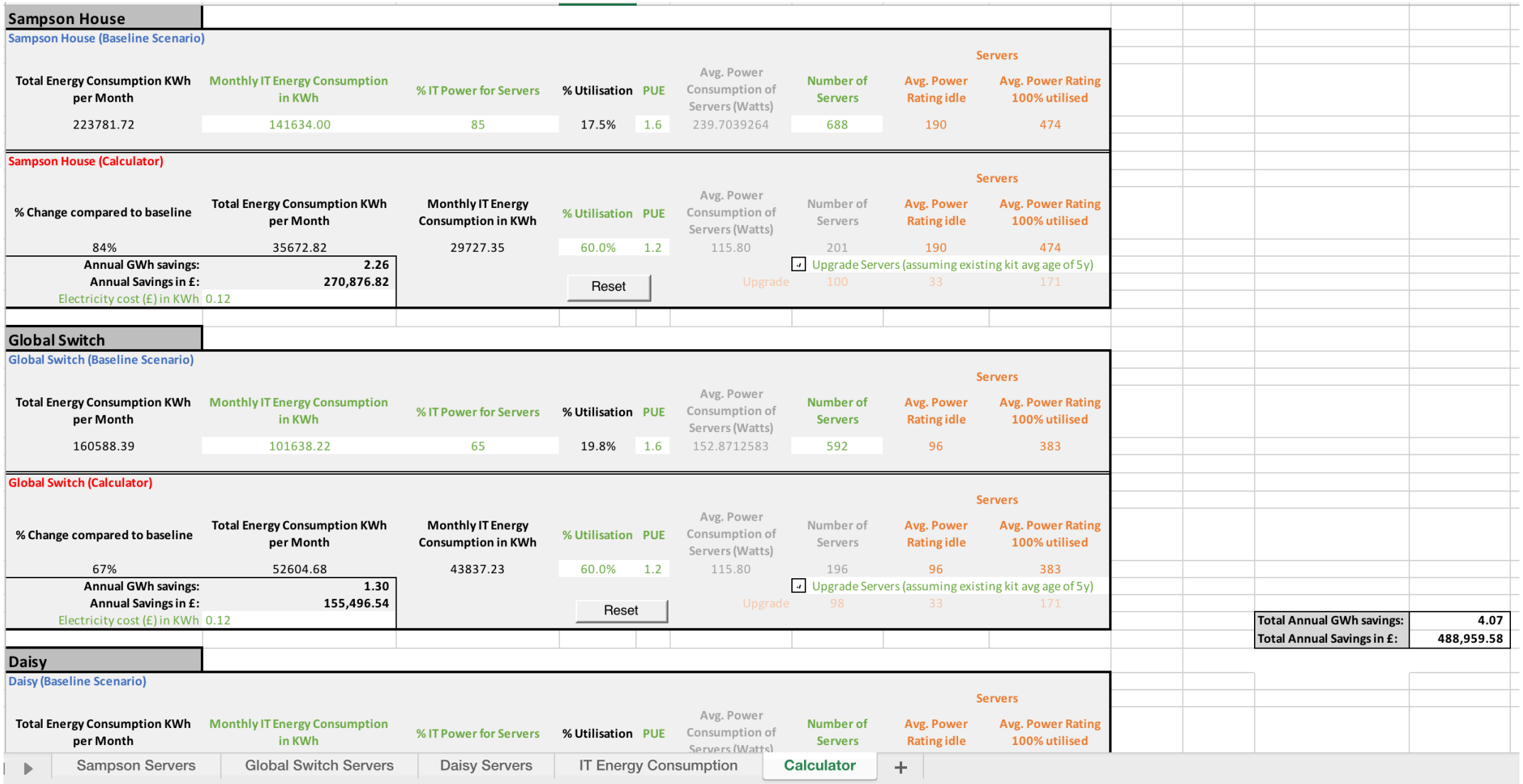
Sample of Data provided by IBM – Defra

COMPUTERSYSTEM NAME	NUMBER OF CPUS	CPU SPEED	MEMORY SIZE	System Administrator or Owner	Model	Major Business Processes Supported or System Purpose	CI LOCATION
GB32QTE000DEF37	4	3,600,000,000	3,488,612,352	DEFRA WINTEL	eserver xSeries 346 -[884042Y]-	TIVOLI GATEWAY	AH LEEDS
LDSPW0-SCCMDP01	12	1,900,000,000	8,192,000,000	DEFRA WINTEL	IBM x3650 M5	SCCM Secondary Site Server	AH LEEDS
LEOPW0-DCFS01	2	2,400,000,000	8,000,000,000	DEFRA WINTEL	IBM x3650 M4 - 7195	Domain Controller	AH LEEDS
WYYPW0-MPD01	2	2,660,000,000	8,000,000,000	DEFRA WINTEL	IBM X3650 M3	Natural England GIS Mapping Data File Server	ASHFORD
AYRPW0-SCCMDP01	12	1,900,000,000	8,192,000,000	DEFRA WINTEL	IBM x3650 M5	SCCM Secondary Site Server	AYR
BRIPW0-MPD01	2	2,660,000,000	8,000,000,000	DEFRA WINTEL	IBM X3650 M3	Natural England GIS Mapping Data File Server	BRIS TEMP QUAY
BTQESX001	2	2,400,000,000	8,000,000,000	DEFRA WINTEL	IBM x3550 M3	APPS Server	BRIS TEMP QUAY
BTQPW0-DCFS01	2	2,400,000,000	8,000,000,000	DEFRA WINTEL	IBM x3650 M4	Domain Controller + File Server	BRIS TEMP QUAY
BTQPW0-FILE01	2	2,400,000,000	8,000,000,000	DEFRA WINTEL	IBM x3650 M4	File Server	BRIS TEMP QUAY
BTQPW0-SCCMDP01	12	1,900,000,000	8,192,000,000	DEFRA WINTEL	IBM x3650 M5	SCCM Secondary Site Server	BRIS TEMP QUAY

PUE Reference points

- Average European PUE, based on the 300 or so odd data centres reported under the EU Code of Conduct scheme, is 1.7.
- In the US, federal data centres are not permitted a PUE higher than 1.5.
- Ark Crown Hosting PUE expected to be around 1.2.

EURECA assessment
What we should expect from the Industry…



Sampson House

Sampson House (Baseline Scenario)

Total Energy Consumption KWh per Month	Monthly IT Energy Consumption in KWh	% IT Power for Servers	% Utilisation	PUE	Avg. Power Consumption of Servers (Watts)	Servers: Number of Servers	Servers: Avg. Power Rating idle	Servers: Avg. Power Rating 100% utilised
223781.72	141634.00	85	17.5%	1.6	239.7039264	688	190	474

Sampson House (Calculator)

% Change compared to baseline	Total Energy Consumption KWh per Month	Monthly IT Energy Consumption in KWh	% Utilisation	PUE	Avg. Power Consumption of Servers (Watts)	Servers: Number of Servers	Servers: Avg. Power Rating idle	Servers: Avg. Power Rating 100% utilised
84%	35672.82	29727.35	60.0%	1.2	115.80	201	190	474
						☑ Upgrade Servers (assuming existing kit avg age of 5y)		
						Upgrade	100	33	171

Annual GWh savings: 2.26
Annual Savings in £: 270,876.82
Electricity cost (£) in KWh 0.12

Reset

Global Switch

Global Switch (Baseline Scenario)

Total Energy Consumption KWh per Month	Monthly IT Energy Consumption in KWh	% IT Power for Servers	% Utilisation	PUE	Avg. Power Consumption of Servers (Watts)	Servers: Number of Servers	Servers: Avg. Power Rating idle	Servers: Avg. Power Rating 100% utilised
160588.39	101638.22	65	19.8%	1.6	152.8712583	592	96	383

Global Switch (Calculator)

% Change compared to baseline	Total Energy Consumption KWh per Month	Monthly IT Energy Consumption in KWh	% Utilisation	PUE	Avg. Power Consumption of Servers (Watts)	Servers: Number of Servers	Servers: Avg. Power Rating idle	Servers: Avg. Power Rating 100% utilised
67%	52604.68	43837.23	60.0%	1.2	115.80	196	96	383
						☑ Upgrade Servers (assuming existing kit avg age of 5y)		
						Upgrade	98	33	171

Annual GWh savings: 1.30
Annual Savings in £: 155,496.54
Electricity cost (£) in KWh 0.12

Reset

Total Annual GWh savings:	4.07
Total Annual Savings in £:	488,959.58

Daisy

Daisy (Baseline Scenario)

Total Energy Consumption KWh per Month	Monthly IT Energy Consumption in KWh	% IT Power for Servers	% Utilisation	PUE	Avg. Power Consumption of Servers (Watts)	Servers: Number of Servers	Servers: Avg. Power Rating idle	Servers: Avg. Power Rating 100% utilised

Sampson Servers | Global Switch Servers | Daisy Servers | IT Energy Consumption | Calculator | +

EURECA assessment
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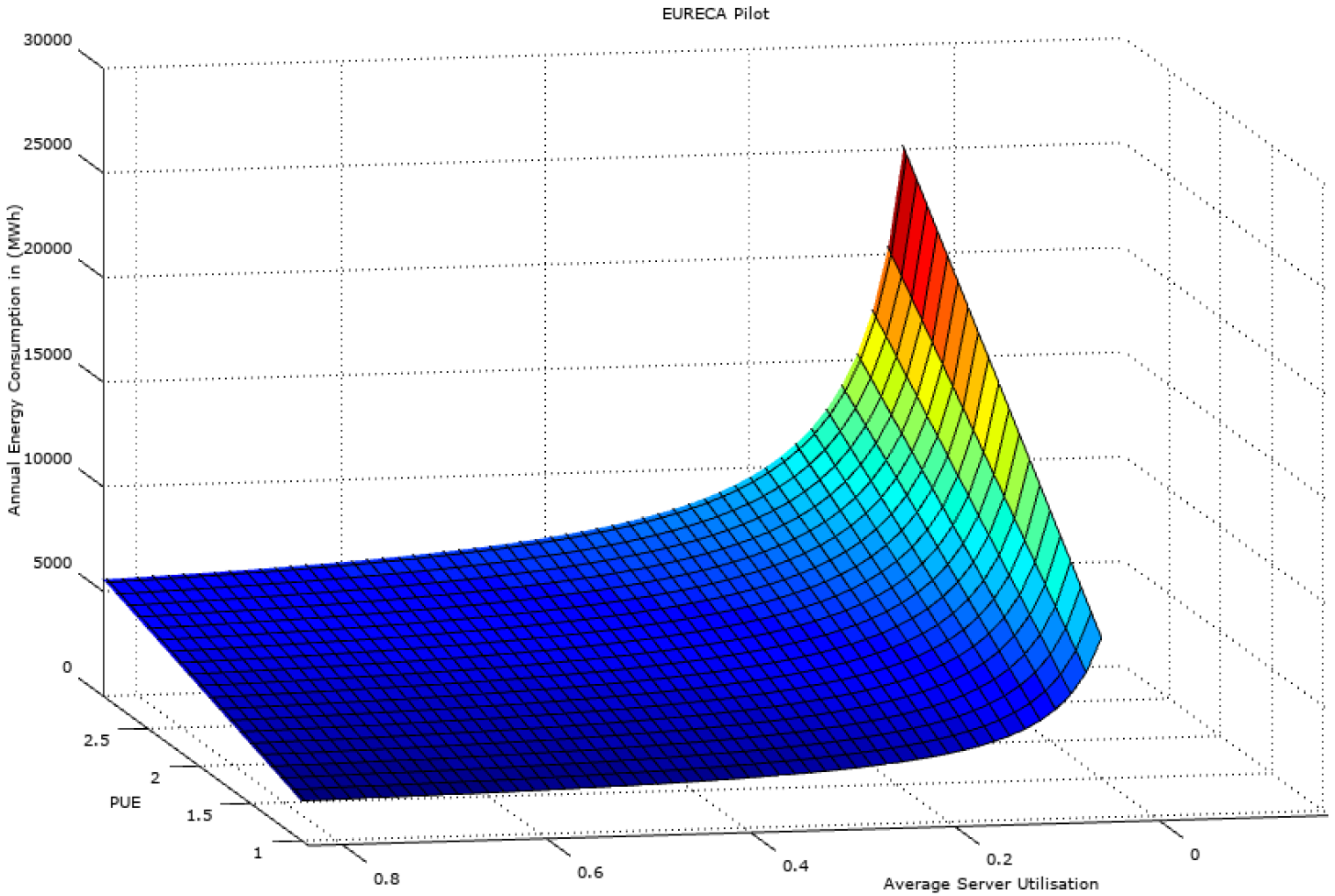

Current state of procurement & expectations

- Sampson House lift and shift to ARK completed
- Negotiations completed for EA and Global Switch services used PUE targets and utilisation levels proposed by EURECA as challenge for final tenders…
- Final tender evaluation completed by mid-March
- Award mid-May 2018

Wider context of challenge

- Defra
  - Data and Digital transformation
  - Services not assets – Cloud first/Crown Hosting
  - On-going/planned procurements
    - Frameworks
    - OJEUs
    - STAs
  - All have hosting needs – Trap and Control them!!
- Central (Cab Off, GDS, HMT)
  - Gov ICT Sustainability delivery unit (GDU)
  - Central (Gov CTO Tech Leaders)
  - Technology Code of Practice – HMT spending control

THANK YOU

Questions?