

Our Journey to the Cloud

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Introduction

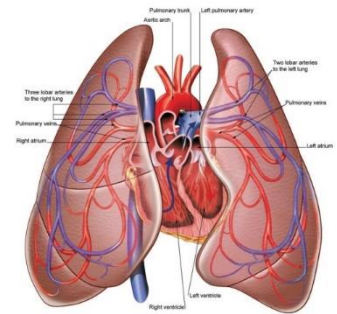
Royal Brompton & Harefield NHS Foundation Trust

- **UK's largest centre for the treatment of adult congenital heart disease**
- 190,000+ outpatient appointments, >40,000 inpatient & day cases per annum
- **UK's largest specialist heart and lung centre**
- 3 sites: Chelsea, Harefield, and Wimpole Street,
- **Europe's top-ranked respiratory research centre**
- **Europe's largest unit for the treatment of cystic fibrosis**
- The cardiac, cardiovascular & critical care teams are rated **in the top three most highly-cited health research teams in Europe, producing more HCPs than any other NHS trust in England**
- Opened a state-of-the-art hybrid theatre, which enables doctors to carry out different procedures for patients in the same session
- Were named as one of the best places to work by the HSJ and Nursing Times
- Received 10,000 patient comments, 90 per cent of which were positive
- **Performed the UK's first surgical treatment for chronic bronchitis, which freezes diseased lung tissue using liquid nitrogen**
- Received a 98 per cent recommendation score in the 2015/16 Friends and Family Test
- **Pioneered the use of CardioMEMS microchip devices, which monitor heart failure remotely**
- >3,000 angiograms & cardiac catheterisations, 1,800 thoracic surgery operations, 2,400 coronary angioplasties, 2,000 treatments for respiratory failure & 1,200 heart bypass operations (including heart and lung transplants)



Joanna Smith

- 30 years in pharmaceuticals, primarily in IT
- Global and local roles – business facing
- First role in Public Sector/ NHS hospital
- All Digital Services & Operations including Imaging IT, IG, Clinical Engineering & Medical Records





A lifetime of specialist care

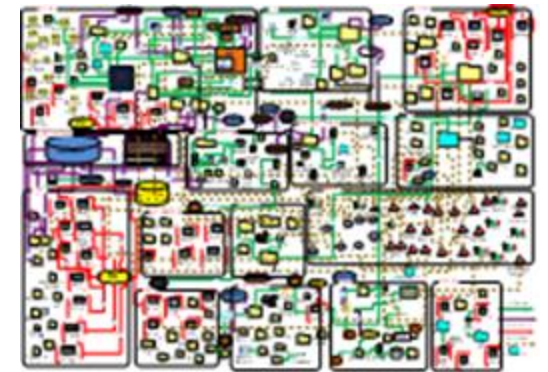
The way it was January 2013



Information Services (IS)

- Silo'd culture
- Focussed on the technology not user experience and meaningful outcomes
- **Gaps in skills & capabilities**
- Poor engagement with clinical and operational colleagues
 - Increasing levels of dissatisfaction
 - Lack of credibility
- **No clear strategy or plan**

- ☹ **Capacity issues**
- ☹ **Network failures**
- ☹ **Poorly managed desktop**
 - ☹ XP
 - ☹ Admin rights
 - ☹ No standard build
 - ☹ Limited AV
- ☹ **Aging physical server estate, little or no virtualisation**
- ☹ **Difficulty responding quickly to requests for new solutions**



Over 400 disparate systems,
many with overlapping or
duplicate capability

Our Strategy & 3 Year Plan March 2014

Our Mission & Vision

To enable the Trust to achieve its goals through the effective use of digital and technology solutions

For our patients: superior clinical outcomes and patient care, enabled by high quality digital and technology solutions

For our colleagues: access to accurate information and outstanding digital and technology services whenever, wherever and how ever you need them

For ourselves: to be acknowledged as a valued business partner, delivering on our promises and excelling in all we do

Strategic Principles

- Focus on outcomes and the clinical need and patient safety first, technology second
- Partner with our colleagues
- **Off premise, cloud first**
- Protect the data not the device
- Device and OS agnostic
- **Buy not build**
- Best of breed vs good enough
- Develop and invest in our staff
- **Scalable, future proofed solutions**
- **Well-established and financially stable suppliers**
- **Third-party provision of non-strategic services**
- **Comply with current and emerging standards**
- Reuse and standardise - avoid duplication

Major transformation programme

- Get the basics right
- New roles & capabilities
- Network redesign
- **Transform compute & storage**
- Update the desktop
 1. Migrate off XP & replace/upgrade PCs
 2. Deploy VDI
 3. Expand SSO
- Migrate PABX to VOIP and UC
- Begin the clinical transformation
- New clinical data warehouse & analytics capability
- Replace PAS
- Implement new EPMA
- Digitise patient records



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The journey so far



Organisation

- New structure and roles
- Fewer contractors
- Goals & Objectives
- Appraisals & PDPs
- Competency framework
- Training plans
- New shared IG and IT Security services

Clinical Transformation

- Imaging Strategy & PACS Remediation – *faster, more resilient, remote access*
- Clinical Data Warehouse & analytic tools – *delivering new insights and reducing time spent on research*
- EPMA – *improving safety and effectiveness*
- EDM – *digitisation of patient casenotes, deliver on paperlite by 2020*
- PAS – *improving efficiency and effectiveness, foundation for EMR*

Infrastructure

- New core, edge & wifi network – *faster and more reliable*
- **New virtualised compute & storage solution – fewer outages**
- New managed print service – *better service, lower cost*
- New telecoms contract – *cost saving*
- Migration to W7 and PC refresh - *faster and more reliable*
- Exchange & Active Directory upgraded – *email archiving, presence, unlimited mailbox, improved OWA*
- **Migration to cloud ongoing – improved resilience -DRaaS, faster time to build**
- New firewalls and enhanced security services – *mitigating cyber risk*
- Skype for Business – *internal meetings, messaging, remote consultations with patients and HCPs*
- Single Sign-on and VDI – *faster access to systems including UYOD*
- MDT/AV rooms overhauled – *self service, fewer issues & delays*
- Transition from physical to virtual bleeps - *underway*
- **Office 365 - in progress**
- **VOIP & Unified Communications - underway**



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What do we mean by “The Cloud”?

blue sky and sunshine or storms and disappointment?



Definitions

NIST (National Institute of Standards and Technology)

<http://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-145.pdf>:

Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model is composed of five essential characteristics, three service models, and four deployment models.

IBM <https://www.ibm.com/cloud-computing/what-is-cloud-computing>:

*the delivery of on-demand computing resources— everything from applications to data centers—over the Internet on a **pay-for-use basis**.*

<u>Characteristics</u>	<u>Service Model</u>	<u>Deployment Model</u>
<i>On-demand, self service</i>	<i>Software as a service (SaaS)</i>	<i>Private Cloud</i>
<i>Broad network access</i>	<i>Platform as a service (PaaS)</i>	<i>Community Cloud</i>
<i>Resource Pooling</i>	<i>Infrastructure as a service (IaaS)</i>	<i>Public Cloud</i>
<i>Rapid Elasticity</i>		<i>Hybrid Cloud</i>
<i>Measured service</i>		

Wikipedia https://en.wikipedia.org/wiki/Cloud_computing :

Internet-based computing that provides **shared processing resources** and data to computers and other devices on demand. It is a model for enabling ubiquitous, **on-demand access** to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services)

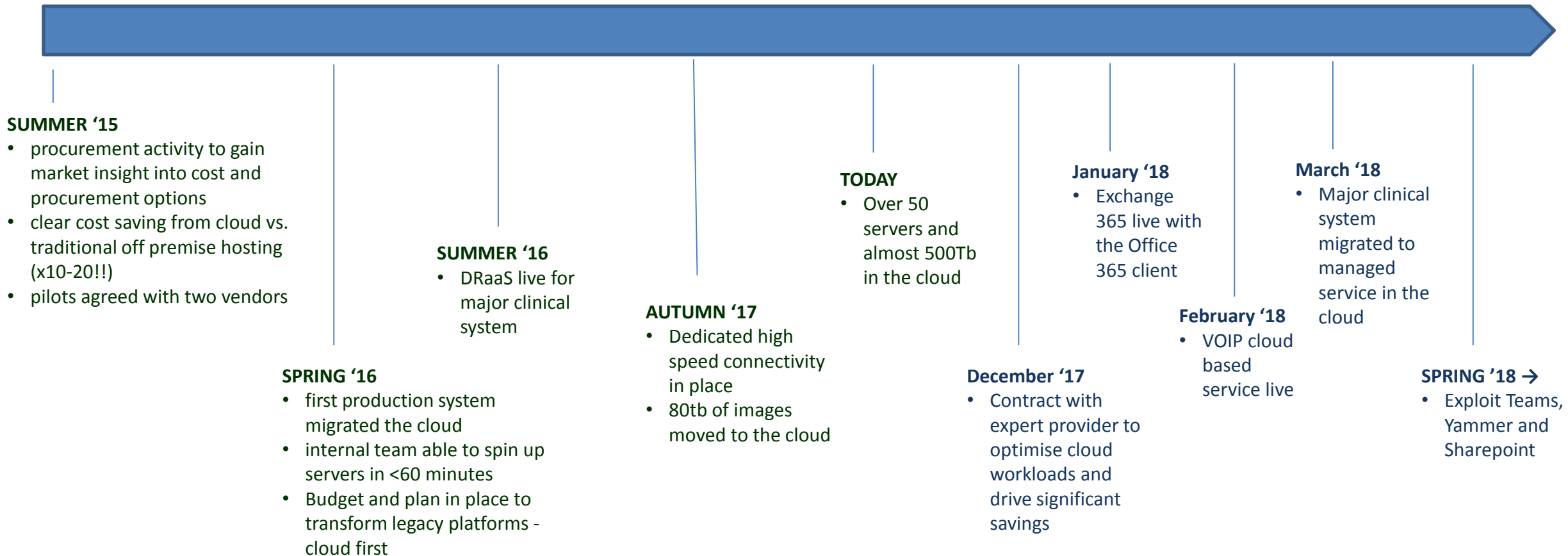
“Self service,
Highly Scalable,
Pay per use”

Traditional off premise hosting IS NOT NECESSARILY “Cloud”



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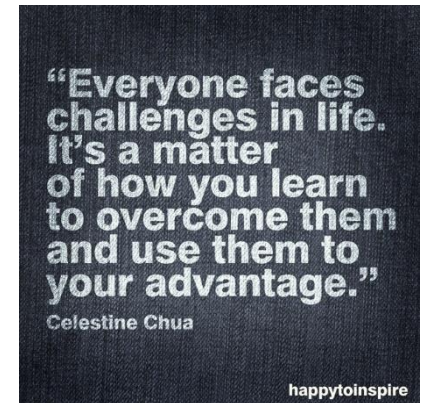
A timeline view....



Learnings - so far

The Cloud is a paradigm shift and can transform IT services and lower costs but....

- You need to properly understand PID and DPA implications
- Talk to the experts
- Know your organisation and its attitude to risk and innovation
- Don't underestimate the fear (and therefore consequence) of the unknown/unfamiliar on some people's attitude and behaviour
- Be prepared for initial cost pressures
- You will need to acquire new skills and capabilities
- Trust your instincts
- Be brave



Feel the
FEAR
and
DO
IT
anyway.

Thank you, any questions?

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