# Powering Digital Public Services

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BUSINESS DEMOGRAPHIC - ORBIS

- Two county & one unitary councils.

- 45,000 combined IT service users.

- 750 Network sites spread over the south of England (*more if schools are included*).

- Each organisation has different prevailing cultures and digital strategies.

- Common need for a consistent approach to a highly available, scalable infrastructure to support Digital Platforms.
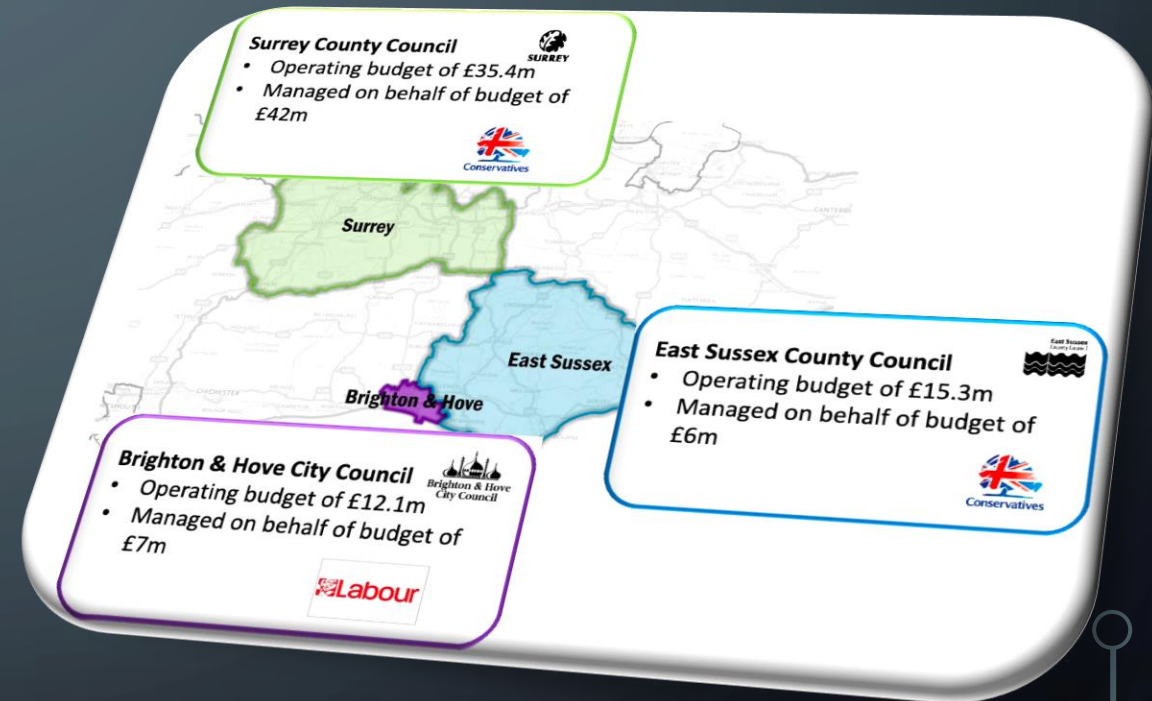
THE DIGITAL CONUNDRUM FOR INFRASTRUCTURE

- There are many views of what "Digital" looks like.

- "Digital" is often driven by needs, strategy, resident requirements and politics.

- What is common is the need for a reliable infrastructural platform strategy to support any Digital Innovation.

- Councils and many Public Sector organisations are 24 x 7 operations for critical services with demand growing all the time.

- IT Departments need to do more with less – therefore need to plan smarter and with high availability in mind so platforms require less servicing and attention.

THE CORE INFRASTRUCTURE ARCHITECTURE
(C.I.A)

❖ Sets of core principals for infrastructure approach and design for all three Orbis partners.

❖ The Strategy **is predicated** on each Orbis Partner being located in both Orbis Tier 3 and ISO27001 accredited Data Centres and then utilising "burst cloud strategies" where it is deemed sensible.

❖ The C.I.A is therefore a "Cloud Appropriate" strategy.

❖ C.I.A **does not** represent shared infrastructure between partners, but is an agreed approach to infrastructure implementation.

❖ The strategy is designed to be modular and flexible to changes in industry approach.

" *The best corporate infrastructures are simple, scalable, make use of the best of breed technologies - obtained at the best possible cost.*

They are managed in a consistent repeatable way with solid input from monitoring telemetry which is proactively and intelligently acted upon to provide a highly available customer experience. "

SUMMARY OF CORE INFRASTRUCTURE ARCHITECTURE (CIA) DESIGN PRINCIPLES

Layer 6 — Security

Layer 5 — Customer Access

Layer 4 — Availability

Layer 3 — Orchestration

Layer 2 — Compute
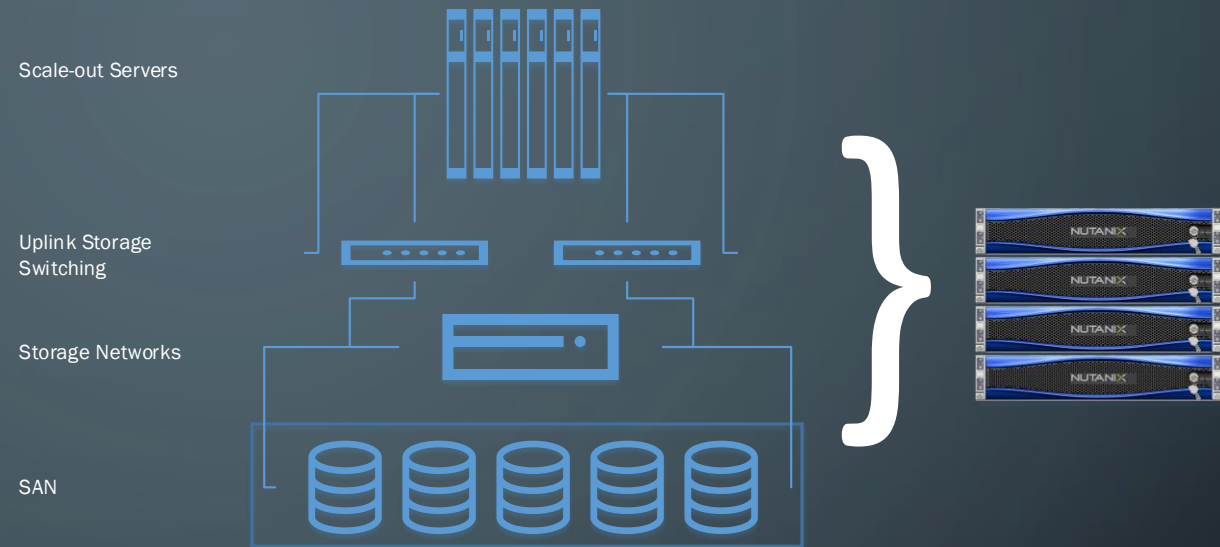
Layer 1 — Data Centre

MONITOR

MONITOR

- Six conceptual layers.

- Each layer intrinsically supports and is linked to the layers above.

- Each layer represents a set of best in class technologies to underpin organisational goals.

- Each layer is encapsulated within a strong and proactive monitoring infrastructure and process.

- Provides a reliable and secure foundation.

- Defines a step change in leveraging capital investment in technology to yield revenue savings.

C.I.A LAYER 2: COMPUTE

- Strategically, Hyper Convergence made sense for each Orbis Partner.
- Scaled out server model is expensive and complex to maintain.
- After a long and detailed evaluation Nutanix was selected as the partner of choice.

Scale-out Servers

Uplink Storage Switching

Storage Networks

SAN

Converged compute (servers), Storage (SAN) and Networking in single nodes.

Decisive factors in selection were:

- Competitive pricing & support options.
- Single vendor approach – "one person to shoot".
  - Which reduced our legacy support revenue costs.
- Strong software product offering including a modern Hypervisor (Acropolis Hyper Visor).
  - Which allowed for us to standardise on a single Virtualisation product yielding large revenue savings.
- Versatile software ecosystem.
- Very quick to deploy and scale.
- Strong integration into Hybrid Cloud scenarios.

WHAT WAS THE VISION?

- Combined with Nutanix we have created the Data Centre X concept.
- Data Centre X abstracts the traditional postures of Production / DR Data Centres by making services available from any location including Private Cloud (*where appropriate*).
- Data Centre X allows for services to be replicated and spun up cross data centres in close to real time and burst services into Azure as needed.
- Makes use of software such as AHV, Flow and eventually Calm to platform, secure and orchestrate environments.

WHAT ARE THE BENEFITS?

- Much higher availability for public facing and in house systems.

- Faster provisioning of technical infrastructure on-prem or cloud based for Digital initiatives or critical emergencies.

- Controlled "self provisioning" of infrastructure for Agile development teams.

- Reduced per annum revenue spend on legacy scaled out servers and support.

But ….

There was another benefit that we didn't even know we needed…

THE COVID-19 CHALLENGE
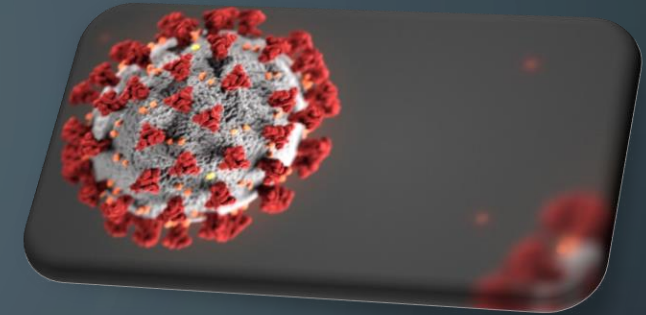
- 23rd March lockdown was called in the UK.

- Over the three Orbis Partners this meant providing concurrent remote access for over 12K staff.

- Deploying a further 1500 laptops.

- Accelerating Microsoft Teams deployment to 10,000 staff, including training!

- Planning for the myriad of possible remote working scenarios and home ISP configurations.

OUR APPROACH

- After we finished panicking for a bit ... we came up with a plan:
  - **Cease all non essential work.**
    - This included a change freeze on all infrastructural systems unless it was linked to our COVID response.
    - A triage system was invoked with the business to ensure only essential work was carried out.
  - **Prioritise front line workers.**
    - Social care, Education, Health and Blue Light operations.
    - Included front line "Services" as well.
  - **Protect the IT Service (*might sound like we ripped this off from somewhere*).**
    - Key people within IT & D were immediately setup to work from home appropriately.
    - Teams that could not work from home (e.g. *Data Centre operations*) were split between sites.
    - Key partners were briefed on emerging requirement to aid and assist to reduce strain on IT staff.

CEASE ALL NON ESSENTIAL WORK

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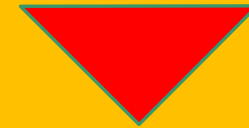
PRIORITISE FRONT LINE WORKERS

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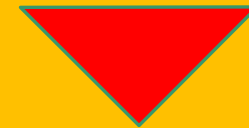
PROTECT THE IT SERVICE

INFRASTRUCTURE ENABLEMENT BENEFITS

- Remote access platforms needed to be bolstered to handle load.

    - Our hyper-converged infrastructure enabled us to deploy additional VPN services.

    - We were able to scale up our Citrix provision by 30% to meet additional demands within half a day.

    - We were able to deploy Microsoft "Always On" VPN to over 2,500 Windows 10 devices.

- Device deployment and configuration management.

    - We were able to redistribute deployment points within the Data Centres and distribution hubs to allow for provisioning of new Windows 10 devices in random locations.

- Networking and Security enhancements.

    - Enhanced network and security telemetry tools brought in by the C.I.A allowed for us to temporarily relax CO-CO controls around Citrix access from home devices.

    - Data Centre network planning where we'd upgrade network links to prepare for the strategy allowed for us to scale the the increased demand.

WHEN NEEDS MUST

- The further security enhancements allowed for us to take a pragmatic view for other COVID response tools (e.g. Zoom and NHS bespoke platforms for consultations) using sensible risk assessments.

- People have adapted to using tools (*such as Teams*) that under normal circumstances be part of multi month roll out programmes within weeks.