IT Transformation Programme

Appendix 2
City of London Corporation

IT Strategy - *2020 Vision*

(Only to be read in conjunction with the Technical Design Principles Document)

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Introduction and Context

The City of London Corporation and the City of London Police are now at a point where it needs to re-evaluate both the demands it has for its IT services and how those IT services will be supplied. The current Technology stack has reached both the end of its supportable life and serviceable life.

This paper, which needs to be read in conjunction with the Road Map Design Principles, articulates the current problem definition, what we can learn from the past and how we can shape the future with a clearly defined strategy and road map.

CoL is a consumer of IT and ultimately its strategy is based on the services it needs to consume, market trends and the transformation required to enable those services. Strategy is about shaping the future and has 3 components

- Diagnosis: analysing the environment or situation, making a diagnosis
- Guiding Policy: setting the Policy framework
- Action Plans: sequencing the tasks and activities

The key point is strategy is not a vision but is the defined action plan based upon the Guiding Policy and the diagnosis of the current issues.

This document is concerned with the IT strategy and not the Information and Application strategy which is a separate methodology linked to business strategy and business process. Contextually it is focused primarily on CoL except for the network with the CoLP to follow on completion of their requirements definition for the Digital Police Force in 2017.

IT is the enabling services and supporting infrastructure the business consumes and is an enabler to the business strategy. IT though is critical to business success and for the modern Corporation it is essential that the underpinning IT and services are fit for purpose and support the goals of the organisation.

IT industry developments and Digital Transformation

The IT industry can be defined as a mature industry and future developments are focused on lower costs and simplicity as the last next big thing was the development of the web. ERP solutions are relatively mature and the days of implementing systems and removing 20 account payable staff have gone. Further efficiency and productivity improvements in IT will come from leveraging new delivery mechanisms from cloud based service providers and aligning the service model to new ways of working. The key developments are

- The internet has become increasingly dominant in terms of how services are viewed and accessed
- The Cloud delivery models have reached critical mass and maturity
- Innovation is coming from how services are being delivered and consumed
- IT service models have transformed
- The Corporate IT function is de-skilling as the services move to the cloud
- Services are increasingly agile with a focus on mobility

These trends have coalesced around the Strategic direction of Digital Transformation which seeks to take advantage of these trends to deliver a better outcome for the enterprise. Digital Transformation can be defined as the end-to-end approach to modernising IT and is an effective approach to create and support a viable digital business. It has three key components following the strategic agenda;

- Defining the target state for their IT architectures
- Deciding which elements of the IT landscape (systems, people, and processes) need to change
- Determining the sequence and scope of change

The IT Strategy for the City of London is to follow a Digital Transformation Strategy that addresses the failings and weaknesses of the past while ensuring the organisation is ready for the future. To be successful the three steps need to be addressed systematically. This paper covers the road map for the underpinning services of the network, infrastructure, end user computing and collaboration services. More importantly it addresses how these services will be consumed, supported and the underlying policy frameworks. The major challenge for us in all this change will be how the IT department responds as we move away from building IT to consumers of IT.

The Diagnosis and business requirements

User Perception challenge

To change the IT department needs to be honest with itself on the current challenges and the perception gap between user expectations and the service and services being offered. More importantly we need to be honest with ourselves on the root causes and ensure we are a learning organisations that can work together to enable an enhanced IT offering. With the consumerisation of IT in many cases our users IT is better in a home environment than at work.

Current perception and reality of IT can be summarised as;

- Underperforming systems
- Spinning Donuts
- Slow performance
- Outdated technology
- Poor service
- End user frustration
- Credibility
- High levels of complexity

No one root cause can link these issues but a number of themes have emerged;

- Lack of architectural reference model
- Service and support landscape failing to keep pace with change
- Outdated and complex technology stack
- Built up technology debt
- Undocumented systems
- Poor understanding of the as built environment
- Half delivered projects not fully transitioned into support
- Projects closed down before they had delivered their goals
- Overlapping technologies
- Sub optimal approach to out sourcing

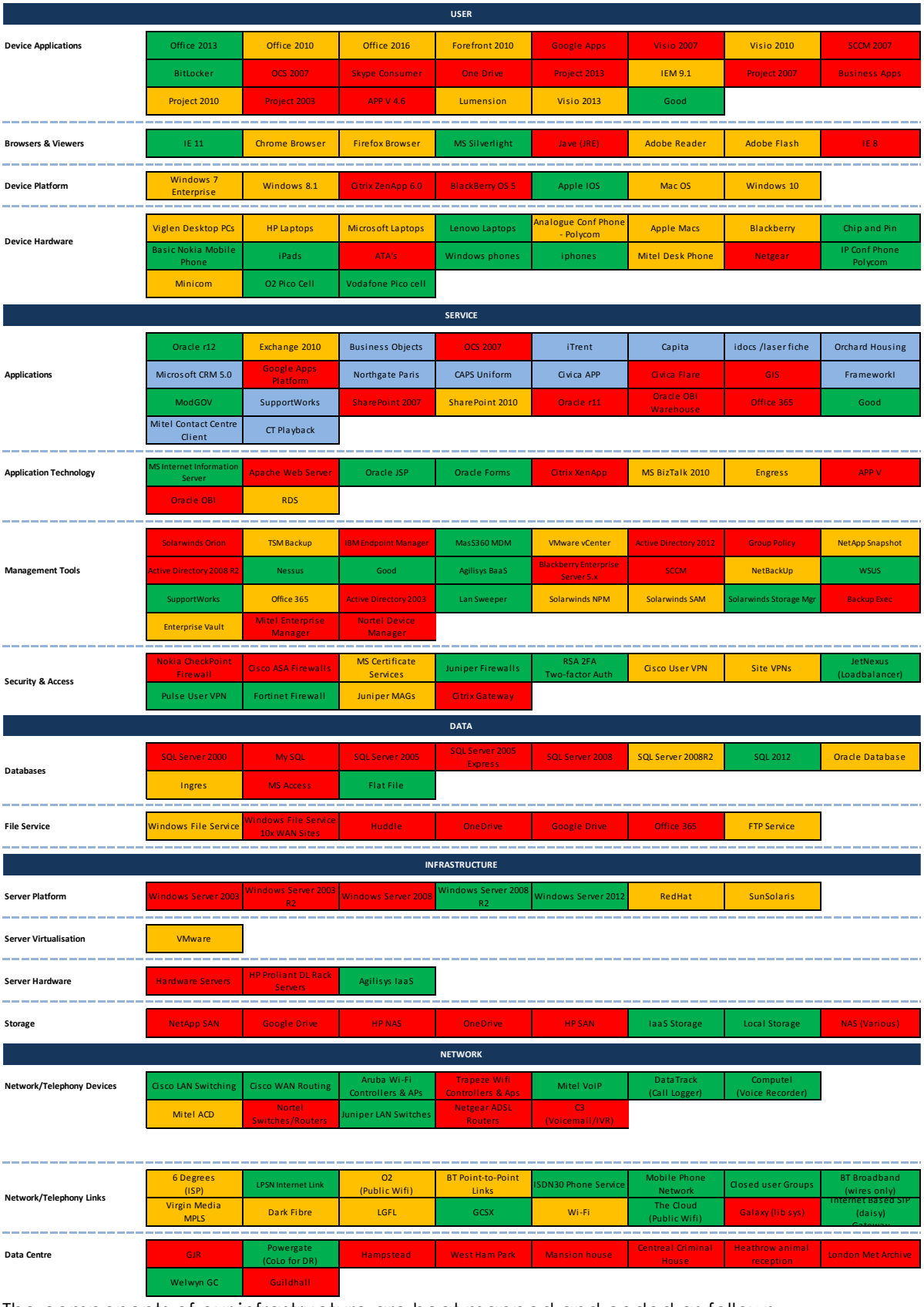
To illustrate the point, we need to ask why does it take 3 days to deploy a new laptop when the industry standard is 45 minutes. Our last upgrade of the desk top environment moved us from Windows XP to Windows 7. This was forced on us by XP going end of life. Our approach was similar to taking a 2001 car into the show room and changing the badge to the 2009 model. The issue was that in the intervening 10 years the underlying architectural, support and delivery model had fundamentally changed. While the badge on the system says Windows 7 we are still managing the solution as though it was XP putting our technology 15 years behind in terms of improvements. The project exhibited all the attributes above and we can take some key lessons forward through our change;

- Upgrades are not about the technology but achieving improvements in business outcomes
- To achieve the outcomes, we must not only upgrade the technology but also the support and service model
- Methodology must be followed including being clear on acceptance criteria

Technology Stack Review

Following methodology, the starting point for the strategy has been an in-depth analysis of our technology stack in determining root cause of user frustration. The analysis helps us understand the as built environment, the components and impact of change and the sequence of events.

CoL Technology stack - December 2015 (baseline)



The components of our infrastructure are heat mapped and coded as follows

- Green – currently fit for purpose though may underperform due to other components

- Amber – needs attention, approaching end of life
- Red - either end of life, poorly architected, overlapping and ultimately requiring change

Coupled with this have been an in depth system analysis on the following components;

- Network and site surveys
- Exchange
- DHCP
- Citrix
- Fileservers
- Desktop
- Active directory
- Infrastructure
- Applications

The detailed analysis can be viewed separately but result in a number of themes to follow through in our solution design. In principal the critique of the technology stack and its components are;

- Poor understanding of financial model and real Total Cost of Ownership
- No defined Policy framework
- Lack of understanding of the component interdependencies
- Little standardisation and optimisation
- Components implemented as point solution
- Lack of investment in support and maintenance
- Poor transition and handover into support
- Components and the technology stack failing to meet business requirements

Risk Profile

Given the complexity and current state of the technology stack a number of emerging risks need to be highlighted and mitigated through the transformation. The lack of standardisation and architectural principles imposes unquantified security, business continuity and disaster recovery risks. A key component of the transformation will be to ensure we have effective and manageable risk profiles.

Design Principles and Business requirements

As we design the solutions we can now define a set of design principles and business requirements that all solutions must conform to;

Business Requirements

- Enhance the end user experience
- Deliver a platform to enable a more mobile workforce
- Enhance the reliability and functionality of our environment
- Align the user experience to modern ways of working
- Deliver collaboration to provide a connected workforce
- Place the Corporation into best in class for Technology adoption and exploitation
- Provide our users with appropriate the tools to do their jobs
- Align user expectation and user perception

Design Principles

- Policy led design
- Remove complexity and simplify wherever possible
- Deliver end to end solutions
- Ensure the support model transforms in parallel with the technology
- Adaptable to current and future needs
- Alignment to industry trends

- The Technology Stack will be architected to best practice providing resilience and redundancy at all levels where cost effective and aligned to business requirements
- The Technology Stack will be designed to support CoL requirements for cost effective ICT services
- Cloud solutions wherever possible
- Technology stack platform based around a single vendor where possible
- The technology stack will be maintained at the latest patch and release levels (n-1)
- The technology stack will be monitored and maintained at all times
- Compliant with PSN wherever appropriate
- The technology stack will be fully documented at all times
- Aligned to good industry practice and architectural principles
- Eliminate vendor device proliferation and collapse functionality into minimum number of devices

The User Experience

The modern and standard upgraded environment is end user focused to deliver their Business needs both seamlessly, securely and with high performance. The user experience in principle does not change as users still use the applications they have always used and still use Microsoft office with Word, Excel and Outlook. The reality is that the upgraded environment is a significant step forward in how the services are delivered and how end users can collaborate and work in the environment. The underlying technology will enable rather than constrain the business. Following completion of both the Network and Desktop Transformation the following benefits will be delivered;

Performance

- Log on speeds of sub 1 minute from power on
- Big performance and speed improvements
- New end-user hardware both laptops and desktops

Desktop Experience

- Full Microsoft Office 2016 on all devices
- Ability to Instant Messaging
- Ability to hold a Video and Voice call from your device
- Share your desktop and documents for collaboration
- Personal intuitive intranets
- Full presence service providing visibility of user availability
- Unlimited e-mail storage and no archiving
- Ability to view Project and Visio documents
- Applications deployed on demand directly to the device
- Applications requests via a zero touch portal
- Standardised applications for all teams and departments
- Increased personal document storage

Connectivity

- Ability to work from any location
- Open your laptop and connect to the Corporation environment from any location with an internet connection with no additional tokens required
- Work online and offline
- High bandwidth connectivity from all Corporate locations
- Laptops connect directly into Corporate WiFi

Support

- Full remote support

- No need for desk side visits
- Predictive maintenance and monitoring
- Automated patch management

IT Strategy 2 Year Plan and Policy Framework

The Strategic plan is split into 3 distinct phases

- Planning
- Delivery
- Benefit Realisation

Strategy and Financial Planning

This Phase is nearing completion with the High Level Designs due by the end of 2016 and final costings for the Gateway Process in January.

Phase 1 Strategy and Financial Planning		
Strategic Context	**Operational Deliverables**	
• Corporation wide agreement on the strategic plan and financial model to deliver the change • Agreement on Corporation Governance	• Agreed Strategic Agenda • Agreed Financial Plan • Agreed Organisational Model • Commercial and 3rd Party Contractual Framework • High Level designs for all solutions	
IT Core Focus		
ORGANISATION • Alignment to the strategy • Clear roles and responsibilities • Focus on transformation vs day to day • Removing overlaps between internal and external	**POLICY** • Organisational policies mapped • Policies defined and linked to business requirements • Principles agreed • Defined metrics of change	**FINANCE** • Map and define Corporate Governance • Map and define Stakeholders • All Gateway Papers Submitted • High level designs signed off

Phase II 2017 - Delivering the change

Phase 2 Delivering the Change		
Strategic Context	**Operational Deliverables**	
• Delivering the agreed plan to time quality and cost • Supporting the change agenda while keeping the business safe	• Desktop, Network WAN and LAN, O365 and Optimisation • Maintaining BAU while delivering the change • Contract and commercial realignment	
IT Core Focus		
ORGANISATION • Delivery Focused built around expanded PMO • Day to day delivery and customer focus • Operational delivery structures with management specialists and overlap with outsourcers removed	**PROCESS** • Defined Standards linked to agreed Policies • Budget management • Corporate communications • Stake holder management	**BUSINESS AND IT** • Business case management • Steering Groups • Business requirements • Maintaining visibility and the pace of change

Phase III 2018 – Benefit Realisation

Phase 3 Benefit Realisation	
Strategic Context	**Operational Deliverables**

• Landing the change • Benefit realisation • Contract tendering	• New 5-year plan including CoLP • Embedding the change • Contract retendering • New TOM aligned to Operational context

IT Core Focus		
ORGANISATION • New Target Operating Model • Redefined service landscape and SLA's • New contractual landscape • Focus on service orchestration	**PROCESS** • Procurement and tendering • Continuous service improvement • Demand management and optimisation	**OPERATIONAL MANAGEMENT** • New structures and governance procedures • Commercial and contractual management • Financial controls and cost savings

Policy Framework

"A policy is a deliberate system of principles to guide decisions and achieve rational outcomes. A policy is a statement of intent, and is implemented as a procedure or protocol."

To date we have defined 56 policies to support transformation of which 30 are now in draft form at the time of writing. Policy is key as they assist in both subjective and objective decision making. They act as business requirements and ensure all changes comply with standard minimising risk. Sub sections of these Policies will need endorsing by the business while others are for note and it will be IT's responsibility to ensure all change complies with the Policy.

A flavour of the policies includes;

- Finance and Investment Policy
- Security Policy
- Data retention Policy
- Environment management Policy
- Starters mover and leaver Policy
- Application Management Policy

IT Strategy and Components of Change

The components of change

The IT Strategy is to follow a Digital Transformation agenda, aligned to business requirements and addressing the underlying issues in systems, processes and people with a clearly defined Policy Framework.

Support Model and Service Landscape

- New Policy Framework
- Service strategy
- New support model aligned to the technology stack
- New Target Operating Model

These changes are to support the Refreshed Technology stack including;

- New managed desktop model aligned to industry best practice
- New network

- Move to Office 365
- Unified Communications

This is supported by a programme of readiness and enabling works including

- Closure of redundant data centres (GJR)
- DHCP optimisation
- Citrix re-architecture
- File server re-architecture
- Non-core sites remediation
- Consolidation and optimisation

Support Model and Service Landscape

The current service landscape is a break fix service based upon a legacy technology stack. As the technology stack transforms the service landscape will need to evolve to a proactive metric driven environment to support consumption based IT.

The move to managed environments and cloud adoption requires different skills and metrics to support the change. As part of the strategy multiple services will move to the cloud supported by a new Service Management Framework based upon C350 defined deliverables and metrics. New skills will be required in demand management, optimisation and consumption based pricing to ensure we deliver on our business case and reduce the Total Cost of Ownership of IT. This requires re-skilling the IT function as we move from technologists to service architects.

Components of our current IT outsourcing service will need to be re-tendered to potentially new providers specialised in these services. With increased remote management and zero touch support models the landscape and inevitably the Target Operating Model supported by new roles and responsibilities will also be refreshed.

The new model is now in draft form with service requirements mapped as part of any technology change.

Managed Desktop

The current desk top is end of life and has failed to keep up with industry changes to support the end user experience. The programme is fully signed off and has the following deliverables;

- Replace life expired hardware for all users
- Implement a fully managed Desktop
- Implement Windows 10, Office 2016, Collaboration (Skype for Business)
- Implement a unified technology stack to enable the benefits
- Implement a mobile solution with Direct Access
- Rationalise the Desktop Application Estate aligned to Policy and Standards
- Implementation of a managed renewal cycle

In this context, a fully Managed Desktop has the following attributes;

- Standard OS build for all users aligned to CoL ICT policy
- Standardised patching and management for all end user devices

- Applications managed and deployed centrally
- No local software installs
- Active Directory designed and maintained to best practice
- Policy driven environment
- Zero touch support and applications on demand

Network

A new network following the expect to connect goal. The current network comprising of the local and wide area network is end of life and cannot support future collaboration objectives. Consistent and repeatable failures are diminishing our ability to operate. Bandwidth constraints at multiple sites are failing to keep up with user demands. The plan envisages;

- To deliver an upgraded network for both the CoL and CoLP – both LAN and WAN
- To enhance the end user experience and expect to connect
- To improve resilience and redundancy
- To improve security
- Ensure the solution is supportable and maintainable
- To upgrade all EOL equipment
- Support future mobile working practices with a corporate WiFi solution
- To enable future collaboration
- To implement a new support model
- Transition all network attached equipment on to the new network
- To decommission the old network
- Transition into support with new tools, training and support agreements

Office 365

The current exchange infrastructure and design has multiple flaws impacting the end user experience. Early indications suggest remediation will be uneconomic. With an upgrade pending the optimal TCO model suggest moving Exchange and SharePoint to the cloud. This gives us multiple benefits including

- Optimal TCO
- Reduced incidents
- Enhanced performance
- Significantly lower IaaS costs
- Removing the need for future upgrades
- Lower storage costs and enhanced collaboration with One Drive
- Mail box sizes up to 50GB per person

Unified Communications

This will be planned further down the line but represents the next level in user experience and collaboration by moving our telephony service to the cloud. Further work is underway to explore our options when our current telephony solution reaches end of life in 2018.

Readiness and enabling works

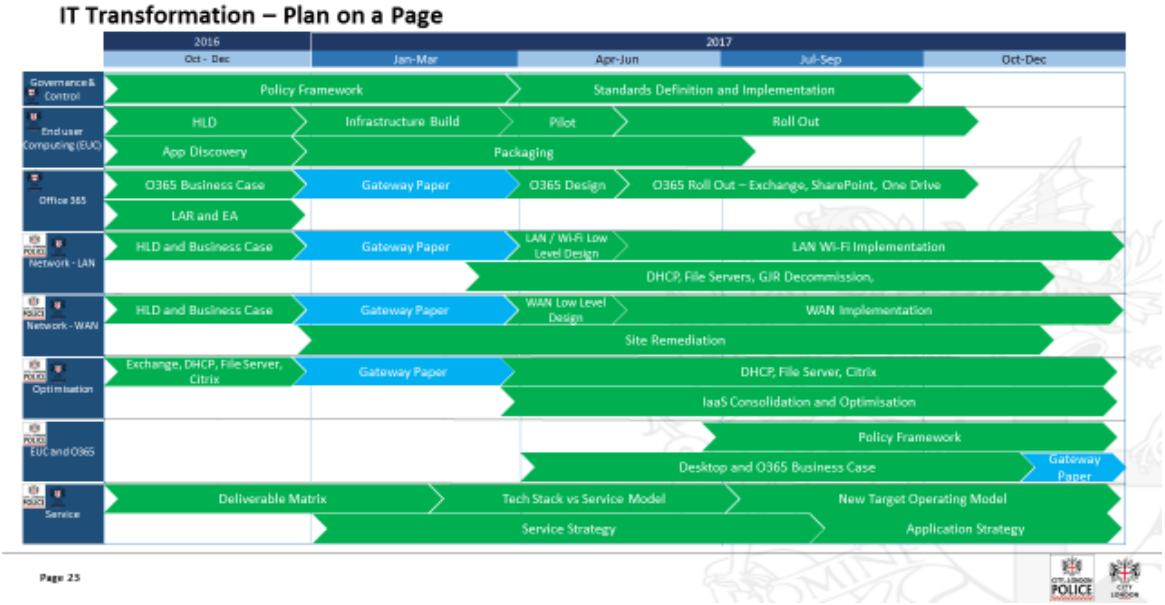
This is a series of projects required as readiness criteria to support the broader delivery and fix a number of underlying performance issues in the environments. These projects include;

- **Closure of redundant data centres (GJR)** – the closure of the GJR is a requirement to simplify the Network Transformation and remove multiple single points of failure. GJR was supposed to be delivered as part of the move to IaaS but got left behind

and is one of our key infrastructure risks. Coupled with this we need to clean up miscellaneous pieces of infrastructure across the estate that will no longer be required following Transformation

- **DHCP optimisation** – is the addressing system for all network attached devices. The current ranges are unmanaged leading to addressing conflicts. With the volume of changes this solution needs remediation to support the Transformation.
- **Citrix re-architecture** – the requirements and use cases for the solution will diminish with the implementation of the Managed desktop. This is an opportunity to deliver significant cost savings by rationalising the environment
- **File server re-architecture** – the current solution is one of the critical components leading to poor end user performance. The analysis indicates a need to restructure the data, apply policy and re-architect to provide a fit for purpose business solution that meets end user performance requirements
- **Non-core sites remediation** - prior to the network refresh there is a requirement to perform remediation works across the estate to bring the environments up to standard to pre pare for the new network. This includes removing substandard cabling, cleaning up comms rooms and providing standard racking for the new network equipment.
- **Consolidation and optimisation** – the move to IaaS was a lift and shift leading to high costs being incurred to host our infrastructure. This programme is focused on consolidation and optimisation to significantly reduce our IaaS costs and remove unwanted components. Standard cloud adoption methodology is to transform and then migrate to reduce the impact of consumption based pricing which was by passed in this case.

IT Strategy and Strategy Road Map



The Strategy Road Map has been designed to

- Minimise business impact
- Reduce the impact of rework and change
- Sequence the changes to deliver maximum user benefit

- Follow good industry practice
- Understand the interdependencies with other programmes such as ring of Steele and Accommodation Programme
- Be clear on readiness criteria and enabling works
- Ensure we are addressing risk

Sequencing the events is key to minimising the Transition costs and delivering the optimal business solution.

IT Strategy and the future Technology Stack

The IT Strategy will deliver the following simplified Technology Stack post Transformation with further works on applications and mobile solutions.

CoL Technology stack - Dec 2017 New desktop, network, readiness criteria