
Technology & Information Services

EA-STR-009-Public Cloud Strategy – A High Level Approach

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Public Cloud Strategy – A High Level Approach

The Plymouth University IT Committee challenged Technology and Information Services (TIS) as to the lack of a formal public cloud adoption strategy for the university; ergo TIS has been challenged to commence the migration of PU storage and compute services to a public cloud environment at the earliest opportunity, incurring minimal cost, risk and service disruption.

This is not a trivial objective and must not be undertaken lightly, rather it requires a complete change of ethos and the adoption of a different approach to ICT. In short it necessitates:

1. Start thinking an 'agreed strategic approach' and stop thinking 'project'
2. Unilateral agreement across TIS of that strategic approach
3. Careful planning to:
 - a. Minimise risk of service disruption
 - b. Establish methodology
 - c. Determine resource requirement
4. Correct and appropriate resourcing

Adoption of an agreed public cloud strategy, combined with correct planning, **will** better position the university with respect to service resilience, transparency of spend, agility of service change/addition and improvement of TIS's service catalogue and reputation.

Without a TIS unilateral agreement and/or poor planning the university **will** end up in an inferior position than today; services would likely be setup and configured in an ad-hoc manner with little or no consideration given to resilience, cost, policy-based automation, service availability and little or no agility to change. This will seriously and negatively impact TIS's ability to deliver change.

Strategic approach

- ❖ 80 percent of service/applications to be cloud or public cloud based by August 2018
- ❖ Stop thinking 'physical' and/or on-premise
- ❖ No service/application to be considered in isolation
- ❖ All services/applications to be considered in relation to all others, including security and data
- ❖ All services/applications to be refactored to ensure 'best fit' for user experience, security and technology
- ❖ All services/applications that store, process or transmit data to utilise a cloud based Enterprise Service Bus (ESB)
- ❖ Refactoring order of preference is Software as a Service (SaaS), Platform as a Service (PaaS), Infrastructure as a Service (IaaS), Appliance, Virtual Machine (VM)
- ❖ Start by migrating low numbers of small, simple services/applications
- ❖ All services/applications to be fully monitored
- ❖ Fully document all aspects of each service/application including service/application lifecycle
- ❖ All changes, upgrades and new services/applications must adopt the above approach
- ❖ Digest and understand the art of the possible
- ❖ Proceed to more complex services/applications
- ❖ Continually review approach and revise as appropriate

High-level plan

- Select an appropriate public cloud service – suggest Azure in the first instance as PU is primarily a Microsoft house, ergo Azure provides the best *current* technological fit
- Select an appropriate certified public cloud specialist partner for technological and configuration guidance for Azure; discovery discussions have already taken place with SilverSands

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- Extend the PU infrastructure to the chosen public cloud (Azure?) – this must be performed under advice and guidance from the certified public cloud specialist partner; services might include but would not be limited to:
 - Connectivity - consider installing an Azure Express Route
 - Active Directory - consider Azure Active Directory or Azure Active Directory B2C
 - DNS services - consider Azure DNS
- Migration to public cloud requires all TIS teams to be aligned and acclimatised to perform as required by:
 - Learning how the chosen public cloud (Azure??) works
 - Testing against a variety of applications, starting small and simple and then increasing complexity
 - Meanwhile planning simple early migrations
 - Understanding optimisation
 - Process improvement
 - Switching servers on and off according to demand
 - Virtual machine lifecycle management - clean the sprawl
 - Stop thinking 'physical world' – start thinking service portfolio to the user-base
 - Understanding the need for, and use of, policy-based automation
 - Implementing appropriate backup and disaster recovery solution
- Minimise virtual machine sprawl by restricting TIS's use, order of service implementation must be Software as a Service, Platform as a Service, Infrastructure as a Service, appliance, virtual machine
- Enable a public cloud service for PU users with appropriate controls, costing and transparency

Known issues

Issue	Rationale	Solution
Cloud first strategy or not?	Some TIS teams already adopt a cloud first strategy in-line with Enterprise Architecture Policy EA-POL-008 ¹ and EA-POL-014 ² - other TIS teams do not conform to that strategy	All TIS teams MUST be aligned with the cloud first strategy as required by the university
Data spaghetti	There is no standard approach to application integration causing massive inefficiencies, potential for security breach - no-one knows who's using which data for what	Introduce an ESB system by system
Application refactoring	The majority, if not all, on-premise applications are not presented correctly for public cloud hosting	Refactor each application as it is touched using strategic order of preference
Generic servers	There are a large number of generic servers performing largely undocumented multi-service/application functions and/or service/application components	Touch each server and refactor each service/application using strategic order of preference
Technical knowledge	TIS has no experience in setting up, running and maintaining public cloud hosting	Train staff as required
Resourcing	Microsoft Partner (SilverSands) for 3 free days, Solution Delivery, Service Management (Infrastructure & Applications)	Pay for more consultancy days

¹ EA-POL-008 – Enterprise Architecture Policy – Provision of Commodity IT Capabilities

² EA-POL-014 – Enterprise Architecture Policy – Hosting

Document Control

Version	Author	Position	Details	Date/Time	Approved by	Position	Date/Time
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