Investment Evaluation Summary (IES) IT.INF.06

Project Details:

Project Name:	Application Delivery
Project Id:	IT.INF.06
Thread:	IT Infrastructure
CAPEX / OPEX:	CAPEX + OPEX
Scope Type:	C
Service Classification:	Standard Control
Work Category Code:	AMITS
Work Category Description:	IT Software General – Standard Control
Project File Location:	DD17 Infrastructure
Preferred Option Description:	Continue with [redacted] pending a review and potential introduction of [redacted]

	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Estimate ($M)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total ($) 2017-2019	[redacted]									
Total ($) 2017-2027	**5,465,000**									

Governance:

Project Initiator:	[redacted]		
Thread Approved:	[redacted]		
Project Approver:	[redacted]	Date:	< APPROVALTIMESTAMP>

Document Details:

Version Number:	1.0

Section 1 (Gated Investment Step 1)

1. Background

This Investment Evaluation Summary (IES) documents planned expenditures for the determination period for [redacted]. The document is one of 8 planned documents covering anticipated activities as described in the IT Infrastructure Asset Management Plan.

Application delivery mechanisms in use at TasNetworks utilise the [redacted] to publish and deliver both desktop and application services to users. The infrastructure includes application virtualisation, application delivery and service management components.

This IES assumes the continued use of [redacted] (with version upgrades as appropriate) to the start of the determination period.

The initiative scope is documented in detail below in Scope, at a high level the document scope extends to:

- Infrastructure underpinning application deployment, access and management
- Remote access infrastructure (excluding security and authentication platforms)
- Application and desktop virtualisation technology options
- Application packaging and deployment options

Given the length of time to both the start and end of the determination period, the rapid rate of change in the IT industry makes accurate cost forecasting problematic. In addition, some proposed alternatives are sufficiently disruptive that careful analysis and testing should precede any implementation decision. For these reasons, cost estimates for these options contain a considerable degree of uncertainty.

Therefore, while these alternatives are presented in this document at a high level, further investigation will be required during subsequent initiative phases to accurately determine costs in accordance with the TasNetworks Project Management Methodology.

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1.1 Investment Need

Investment drivers fall into the following categories:

1. Reliable and effective delivery of IT services to the TasNetworks business and external customers.
2. Compliance with state and federal legislative and regulatory requirements, including:
    a. Industry-specific requirements
    b. State and federal privacy legislation
    c. Occupational Health and Safety requirements
3. The need to maximise the efficiency and cost-effectiveness of service delivery.

Activities and requirements driving the requirement for capital expenditure in this IES are documented in Section 4 of the IT Infrastructure Asset Management Plan. To summarise, Application Delivery activities will consist of:

- Operational support and maintenance of the application delivery infrastructure
- Review of application delivery architecture and vendor
- Assessment of desktop virtualisation technologies for use in conjunction with existing application virtualisation services

1.2 Customer Needs or Impact

TasNetworks IT infrastructure is critical to the reliable, timely and effective delivery of business application and data services to operational and administrative staff. These services are directly related to TasNetworks ability to deliver efficient and effective services to our external customers. The way in which applications are delivered to the end user is key to their experience and any changes to this technology may potentially impact productivity.

The Corporate IT department is strongly focussed on service delivery to internal customers. These services are delivered in a manner that aligns with TasNetworks mission, commitments and values. The customer consultation program for the Infrastructure Program of Work documented in this IES reflects an approach of constant and direct engagement with business customers through:

- Regular direct meetings with management teams from all business units at least every six months. These meetings are broadly scoped and cover all services provided by Corporate IT as well as discussing current and emerging requirements from the business.
- A formal project prioritisation process that includes full transparency, extensive customer consultation and business-determined priorities.
- A fully consultative project management methodology that embeds Corporate IT customers in every stage of the project.

1.3 Regulatory Considerations

As the infrastructure documented in this Initiative Statement constitutes a supporting platform for TasNetworks business operations, there are no identified direct regulatory considerations.

However, the platforms documented in this Initiative Statement host applications and data used by TasNetworks staff in day-to-day operational and administrative processes. These processes are critical to ensuring business compliance with regulatory requirements.

2. Project Objectives

The primary objective of this initiative is to ensure TasNetworks ability to deliver prescribed, negotiated and non-prescribed services to customers. This objective is achieved through meeting the following initiative objectives:

1. Provide hardware and software infrastructure in order to meet IT service level requirements through the determination period:
    a. Application virtualisation infrastructure
    b. Application delivery infrastructure
    c. Desktop presentation services, through virtualised and commoditised desktop service delivery
2. Provide local and remote application access to meet business requirements
3. Provide sufficient capacity over the period for:
    a. Growth in existing business services and activities
    b. Anticipated new business services and activities
4. Ensure that the availability of local and remote application access services meets or exceeds IT service level targets through appropriate configuration and procurement of suitable support agreements.
5. Guarantee the ability of TasNetworks to access IT business services and data in accordance with TasNetworks Disaster Recovery/Business Continuity requirements.
6. Ensure that local and remote application access services are operated to meet TasNetworks compliance requirements for data privacy and data retention.
7. Reduce the complexity, cost and administrative overhead associated with application deployment and client maintenance

The objectives will be met through the execution of maintenance, upgrade and replacement activities as described below.

3. Strategic Alignment

3.1 Business Objectives

[What are the current business objectives that this investment helps achieve?]

The following table highlights the problems that the initiative will solve.

Strategic Goal	Problems this initiative will address
"we enable our people to deliver value"	• The activities proposed in this initiative help to ensure an effective platform to support all IT systems. • The initiative enables delivery of business application services to TasNetworks staff at geographically diverse and remote locations with reduced requirements for data communications capacity (and therefore reduced operational cost)
"we care for our assets, delivering safe and reliable network services while transforming our business"	• There is substantial risk of doing nothing (see chapter titled 'Current Risk Evaluation'). • 'Do nothing' means TasNetworks IT may fail its remit to provide effective and efficient business systems solutions.

3.2 Business Initiatives

[What are the current business initiatives that this investment supports/aligns with? If none, state why?]

The activity proposed in this initiative underpins most other IT activity as it supports the basic method of access to almost all IT systems. It addresses the need to modernise TasNetworks capability to consistently present line of business applications to the increasingly diverse desktop and mobile devices.

4. Current Risk Evaluation

The TasNetworks Risk Framework details the level of risk the business finds acceptable in each category (Safety & People, Financial, Customer, Regulatory Compliance, Network Performance, Reputation and Environment & Community).

This initiative addresses People and Financial risks, of which TasNetworks has a **Moderate** appetite.

TasNetworks utilises various application delivery systems to access a range of business applications and as such not maintaining these systems has the potential for employees to be unable to use these applications. Being unable to access applications will impact on TasNetworks employees ability to complete their work resulting in frustrated and disengaged people, as well budget impacts from lost efficiencies.

4.1 5x5 Risk Matrix

TasNetworks business risks are analysed utilising the 5x5 corporate risk matrix, as outlined in TasNetworks Risk Management Framework.

Relevant strategic business risk factors that apply are follows:

Risk Category	Risk	Impact	Likelihood	Consequence

Safety & People	Out-dated approach to application delivery	Failure to meet expectations of a increasingly tech-savvy modern workforce; inability to implement flexible workplace strategy	Possible	Negligible
Financial	Existing solution becomes incompatible with other systems	Applications can no longer run on the existing version of Citrix	Likely	Minor

Section 1 Approvals (Gated Investment Step 1)

Project Initiator:	[Enter name]	Date	
Line Manager:	[Enter name]	Date	
Manager (Network projects) or Group/Business Manager (Non-network projects):	[Enter name]	Date	
[Send this signed and endorsed Summary to the Capital Works Program Coordinator.]			

Actions			
CWP Project Manager commenced initiation:	[Enter date here]	Assigned CW Project Manager:	[Enter name here]
PI notified project initiation commenced:	[Enter date here]	Actioned by:	[Enter name here]

Section 2 (Gated Investment Step 2)

5. Preferred Option

The preferred option is for TasNetworks to provide application access to both local and remote users from infrastructure located in the production datacentres. Potential changes to service architecture and components are noted, hence the provision for review of application delivery and desktop virtualisation platforms as noted in the below.

The program of work documented below is the preferred option for continued delivery of applications in support of business activities and initiatives.

Risks associated with not proceeding with this option include:

- Increased risk of service disruption due to:
  - Inability to execute required applications
  - Hardware failure
- Inability to access vendor support for desktop operating system and application software
- Security breaches due to exploitation of unpatched vulnerabilities in out-of-support software
- Reduced ability to respond to changing business conditions and imperatives in a timely manner

Potential business impacts associated with these risks include:

- Delays to business operations arising from interruptions to or degraded performance of business applications
- Degraded performance across all application services used by business and operations teams arising from capacity constraints
- Potential breaches of TasNetworks systems hosted on obsolete platforms
- Impaired ability to reduce operational costs associated with data communications due to continued use of high-bandwidth application delivery technologies
- Increased operational costs associated with support of obsolescent and obsolete platforms
- Increased cost and duration of business application delivery project activities

5.1 Scope

The scope of this initiative encompasses the following items:

Item	Description/Notes
Application virtualisation software	Currently [redacted] and associated software
Desktop operating system virtualisation software	To be executed prior to desktop refresh (INF.IT.05)
Application delivery infrastructure	Hardware and software appliances used to deliver [redacted] access

The following program of work activities are anticipated during the period 2017-2022:

Project Activity	Schedule	Description
Review of Application Delivery Architecture	2017	Review of vendors and providers with possible changes to infrastructure arising
Desktop Virtualisation Assessment	2018	Evaluation of virtual desktop infrastructure as a potential driver for increasing the efficiency and reducing the cost of desktop and application access
[redacted] **Licensing Renewals**	Annual	Renewal of licensing and support of [redacted] infrastructure. May change in response to the Application Delivery Review
VDI Licensing and Maintenance Renewals	Annual (from 2018)	Renewal of licensing and support of VDI infrastructure if implemented following the Desktop Virtualisation Assessment

5.2 Expected outcomes and benefits

Implementation of desktop virtualisation (or similar) brings a number of advantages, including:

- Potential to defer desktop upgrades, as endpoint computing capacity is no longer relevant to desktop and application performance
- User experience portability, where the user accesses the same desktop regardless of location or connecting device
- Increased security through centralised hosting and control of desktop services
- Increased flexibility, enabling SOE and operating system upgrades to take place with considerably less complexity and effort
- *Bring Your Own Device (BYOD):* BYOD refers to the policy of allowing employees to use personal devices to access corporate networks, applications and data. While in the past such a policy would often be rendered unworkable due to device security and management concerns, the widespread adoption of VDI technologies (as discussed above) allows corporate desktop environments to be accessed from these devices while remaining hosted and controlled by corporate IT.
- Adoption of BYOD will require changes to corporate and IT policies as well as implementation of appropriate technical controls. The feasibility of adoption will be assessed in conjunction with the VDI assessment discussed here.

5.1 Regulatory Test

N/A

6. Options Analysis

6.1 Option Summary

Option 0 – Do Nothing

Continue to use existing application delivery platforms with no upgrades

Criteria	Advantages	Disadvantages
Solution effectiveness		Solution effectiveness continues to degrade over time through technological obsolescence
Cost	Minimal CAPEX	Increased OPEX
Business impact		Increased risk of service disruption due to platform failure
Business strategic alignment		
IT strategic alignment		Does not align with IT strategy
Project complexity	N/A	
Risk profile		Unable to update operating system platforms to maintain support
Ability to achieve compliance		Unable to maintain security/data integrity safeguards due to unpatched operating system versions
Time - ability to implement within a deadline	N/A	

Option 1 – Recommended Option

Carry out the proposed Program of Work as documented, investigating new approaches to application delivery such as VDI (virtual desktop infrastructure)

Criteria	Advantages	Disadvantages
Solution effectiveness	Potentially significant positive impact to user experience	
Cost		Higher cost than Do Nothing
Business impact	Potentially significant positive impact to user experience	
Business strategic alignment	Aligns with business strategy of enabling our people to deliver value	
IT strategic	Aligns with IT strategy	

alignment		
Project complexity		Moderate
Risk profile		Some technical and business risk due to introduction of new technology
Ability to achieve compliance	N/A	
Time - ability to implement within a deadline		Uncertain due to increased technical risk May require acquisition of new technical skills

Option 2 – Upgrade Existing Systems

Continue to use existing application delivery platforms

Criteria	Advantages	Disadvantages
Solution effectiveness		Solution effectiveness continues to degrade over time through technological obsolescence
Cost	Some CAPEX	Increased OPEX
Business impact		Minimal benefit to users as the technical capability of the solution continues to lag behind current practice
Business strategic alignment		Does not align with business strategy of enabling our people to deliver value
IT strategic alignment		Does not align with IT strategy
Project complexity		Moderate
Risk profile		
Ability to achieve compliance		Unable to maintain security/data integrity safeguards due to unpatched operating system versions
Time - ability to implement within		Significant implementation timeframe

a deadline		

6.2 Summary of Drivers

The following table compares the options presented with regard to the criteria assessed in the previous chapter.

Criteria	Option 0	Option 1	Option 2
Solution effectiveness			
Cost			
Business Impact			
Business strategic alignment			
IT strategic alignment			
Project complexity			
Risk profile	N/A		
Ability to achieve compliance			
Time - ability to implement within a deadline	N/A		

6.3 Summary of Costs

Option	Total Costs ($)
Option 0 – Do Nothing	No Capital Expenditure
Option 1 - Recommended	$5,465,000
Option 2 – Upgrade Existing	$850,000

6.4 Preferred Option Cost Breakdown

	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Estimate ($M)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total ($) 2017-2019	[redacted]									
Total ($) 2017-2027	**5,465,000**									

6.5 Summary of Risk

The preferred option addresses Safety & People and Financial risks, as analysed utilising the 5x5 corporate risk matrix, as outlined in TasNetworks Risk Management Framework.

Risk Category	Risk	Impact	Likelihood	Consequence
Safety & People	Out-dated approach to application delivery - mitigated by updating our application delivery technology and approach	Failure to meet expectations of an increasingly tech-savvy modern workforce; inability to implement flexible workplace strategy	Unlikely	Negligible
Financial	Existing solution becomes incompatible with other systems - mitigated by replacing and updating	Applications can no longer run on the existing version of Citrix	Unlikely	Minor

Although access to resourcing could be considered a general project risk, previous projects and priorities mean that this needs to be called out, and it is possible the project budget will increase due to requirement to outsource resources.

6.6 Economic analysis

Option No.	Option description	NPV	Reason got selection/rejection
0	Do nothing	$0	Infeasible
1	Preferred Option	-$3.83 M	
2	Forego VDI	-$574 K	Fails to keep pace with technology changes

Further details of the NPV calculations can be found here:

IT.INF.06 NPV Calculations.xls

6.6.1 Quantitative Risk Analysis

N/A

6.6.2 Benchmarking

N/A

6.6.3 Expert findings

N/A

6.6.4 Assumptions

ITA-029	Virtualisation assessment will begin near the end of the current hardware cycle
ITA-030	Assume implementation follows assessments for planning purposes
ITA-031	2018/19 VDI implementation reduces future OPEX and is funded by OPEX/CAPEX reductions from elsewhere in this programme of work (beyond the nominated 250K)
ITA-032	VDI implementation spread across 2018-19, with major capital items in 2018

Section 2 Approvals (Gated Investment Step 2)

Project Initiator:	[Enter name]	**Date:**	
Project Manager:	[Enter name]	**Date:**	

Actions			
Submitted for CIRT review:	[Enter date of CIRT here]	**Actioned by:**	[Enter name]
CIRT outcome:	[Enter details here] [Reference any minutes as appropriate.]		