

Investment Evaluation Summary (IES) IT.INF.03

Project Details:

Project Name:	LAN Refresh and Network Management									
Project Id:	IT.INF.03									
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:	Periodically replace networking hardware in accordance with the Asset Management Plan									
	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Estimate (\$m)	█	█	█	█	█	█	█	█	█	█
Total (\$) 2017-2019	1,780,000									
Total (\$) 2017-2019	7,266,000									

Governance:

Project Initiator:	█		
Thread Approved:	█		
Project Approver:	█	Date:	< APPROVALTIMESTAMP >

Document Details:

Version Number:	1.0
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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 eight planned documents covering anticipated activities as described in the [IT Infrastructure Asset Management Plan](#).

As at the end of 2016, TasNetworks expects to operate the following network infrastructure:

- Datacentre core switch hardware at [REDACTED]
- Server and device access switch hardware at the above datacentre locations
- A small number of router devices (routers servicing Wide Area Network links will generally be managed by the service provider)
- End-user access switches in office and remote site locations

[REDACTED]

This infrastructure provides data communications underpinning delivery of application and data services to the TasNetworks business by:

1. Enabling end users to access data and applications hosted in TasNetworks datacentres
 2. Allowing infrastructure platforms hosted in the datacentre to communicate with each other as required
- [REDACTED]

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 need for capital expenditure in this IES are documented in Section 4 of the [IT Infrastructure Asset Management Plan](#). To summarise, activities will fall into the following categories:

- Operational support and maintenance of network hardware and software platforms
- Upgrade and refresh of datacentre LAN platforms
- Refresh of office and remote site LAN platforms
- Review of the TasNetworks network management architecture and configuration

1.2 Customer Needs or Impact

TasNetworks IT network 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 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 Investment Evaluation Summary constitutes a supporting platform for TasNetworks business operations, there are no identified direct regulatory considerations.

However, the platforms documented in this Investment Evaluation Summary 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 sufficient capacity for the following resources in order to meet IT service level requirements through the determination period:
 - a. Datacentre network port capacity and bandwidth
 - b. Office and remote site network port capacity and bandwidth
2. Provide sufficient capacity over the period for:
 - a. Growth in existing business services and activities
 - b. Anticipated new business services and activities
3. Ensure that the availability of network hardware meets or exceeds IT service level targets through procurement of appropriate support agreements.
4. Support the ability of TasNetworks to recover IT business services and data in accordance with TasNetworks Disaster Recovery/Business Continuity requirements.
5. Ensure that LAN services are operated to meet TasNetworks compliance requirements for data privacy and data retention.
6. Ensure that all network management software is:
 - a. Licensed, and installed in compliance with vendor license requirements
 - b. Supported by the vendor to a level appropriate to IT service level objectives
 - c. Upgraded or replaced as necessary to meet the requirements above
7. Ensure replacement of network hardware in line with the IT Infrastructure Lifecycle policy to meet the investment needs documented above.

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

3. Strategic Alignment

3.1 Business Objectives

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”	<ul style="list-style-type: none"> The activities proposed in this initiative help to ensure a stable platform to support all IT systems.
“we care for our assets, delivering safe and reliable network services while transforming our business”	<ul style="list-style-type: none"> 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

The activity proposed in this initiative underpins most other IT activity as it supports the basic underlying infrastructure to all IT systems.

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 Reputational risk, of which TasNetworks has a **Moderate** appetite.

Not maintaining TasNetworks local network infrastructure increases the risk of failure which could lead to internal issues, as well as issues with our customers being able to contact us leading to unwanted media attention. This will also take significant effort to restore.

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
Reputation	Aging hardware has an increased likelihood of failure	Hardware failure will cause system outages which impact normal operations; potential for significant operational effort to remediate	Unlikely	Negligible

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 continue supply of network access and communication services in support of business service delivery. These services will be provided at:

[Redacted]

- Remote site locations throughout Tasmania

Demand for network bandwidth can be reasonable expected to continue increasing as both existing and new applications increase the amount of data transmitted and stored by TasNetworks. In addition, planned lifecycle refreshes of network hardware and software will take place during the determination period.

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

Risks associated with not proceeding with this option include:

- Increased risk of service disruption due to:
 - Increased cost of or removal of vendor support for older platforms
 - Inability to meet increasing capacity requirements for LAN services
 - Degradation of application performance due to increasing demand on ageing platforms
- Degradation of TasNetworks ability to meet Disaster Recovery and Business Continuity objectives in the event of a disaster
- Reduced ability to respond to changing business conditions and imperatives in a timely manner

5.1 Scope

The scope of this initiative encompasses the following items:

Item	Description/Notes
Datacentre Network Hardware	Datacentre network switches and routers servicing TasNetworks LAN traffic
Site Network Hardware	Access layer hardware [Redacted]
Network Management Software	Configuration and service management software used to manage LAN hardware

Areas identified as explicitly outside of the scope of this initiative are:

- Wide Area Network (WAN) services and associated hardware (see IT.INF.04)
[Redacted]
- Network equipment hosted on and dedicated to the TasNetworks SCADA environment

LAN services will be provisioned and maintained through the following project activities:

Project Activity	Schedule	Description
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Datacentre Core Switch Upgrade	█	Upgrade core switch hardware to provide increased capacity and performance
Datacentre LAN Hardware Refresh	█	Includes core and access layer hardware █
Network Management Review	█	Review and possible refresh of network management tools and utilities
Site LAN Hardware Refresh	█	Replacement of site switch hardware █

5.2 Expected outcomes and benefits

Activities and requirements driving the need for capital expenditure in this IES are documented in Section 4 of the [IT Infrastructure Asset Management Plan](#). To summarise, activities will fall into the following categories:

- Operational support and maintenance of network hardware and software platforms
- Upgrade and refresh of datacentre LAN platforms
- Refresh of office and remote site LAN platforms
- Review of the TasNetworks network management architecture and configuration

Implementation of the recommended option will ensure that networking hardware is maintained and replaced in accordance with the Asset Management Plan, and that the associated software is appropriately licensed and supported.

5.3 Regulatory Test

N/A

6. Options Analysis

6.1 Option Summary

This option matrix provides a comparison of the options against the investment drivers detailed in section 2.

Option 0 – Do Nothing Continue to use existing network platforms until failure		
Criteria	Advantages	Disadvantages
Solution effectiveness	Maintains current state, known and stable architecture	Extended maintenance may not be available for some platforms Does not allow for future capacity demand increase
Cost	Minimal CAPEX	Higher OPEX as maintenance and support costs for existing equipment is stretched out
Business impact		Increased risk of service disruption due to hardware failure Does not allow for future capacity demand increase
Business strategic alignment		
IT strategic alignment		Not aligned
Project complexity	Minimal complexity	
Risk profile		Steadily increasing risk of failure, increasing exposure to security risks
Ability to achieve compliance		
Time - ability to implement within a deadline	Minimal change	

Option 1 – Recommended Option

Carry out the recommended program of work as described in this document

Criteria	Advantages	Disadvantages
Solution effectiveness	Provides increased network capacity in support of demand growth	
Cost	Some OPEX reduction as maintenance and support costs for existing equipment is avoided	Large CAPEX requirement
Business impact		
Business strategic alignment		
IT strategic alignment	Aligns with IT Strategy	
Project complexity		Moderate technical complexity
Risk profile		Mitigates risks due to failure and supports mitigation of security risks
Ability to achieve compliance		
Time - ability to implement within a deadline	In-house technical skills will exist (assuming implementation of IT14-0022)	

Option 2 – Partially Defer Capital Expenditure

Defer replacement of network infrastructure and renew maintenance for existing platforms to later in the determination period or after this determination period

Criteria	Advantages	Disadvantages
Solution effectiveness	Provides increased network capacity in support of demand growth	Extended maintenance may not be available for some platforms
Cost	Lower CAPEX requirement (compared to recommended option)	Higher OPEX as maintenance and support costs for existing equipment is stretched out
Business impact		Increased risk of service disruption due to hardware failure
Business strategic alignment		
IT strategic alignment	Aligns with IT Strategy	
Project complexity		Moderate technical complexity
Risk profile		The same technical risk to implement at Preferred Option, less opportunity to mitigate ongoing technical and security risks
Ability to achieve compliance		
Time - ability to implement within a deadline	In-house technical skills will exist (assuming implementation of IT14-0022)	

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	Red	Green	Yellow
Cost	Green	Yellow	Green
Business Impact	Yellow	Green	Yellow
Business strategic alignment	N/A	N/A	N/A
IT strategic alignment	Red	Green	Green
Project complexity	N/A	Yellow	Yellow
Risk profile	Red	Green	Yellow
Ability to achieve compliance	N/A	N/A	N/A
Time - ability to implement within a deadline	Green	Green	Green

6.3 Summary of Costs

Option	Total Costs (\$)
0 – Do Nothing	
1 – Preferred Option	\$7.265 M (2017-2027)
2 – Partially defer	\$6.965 M (2017-2027) – one planned replacement falls beyond the determination period

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)	■	■	■	■	■	■	■	■	■	■
Total (\$) 2017-2019	1,780,000									
Total (\$)	7,265,000									

6.5 Summary of Risk

The preferred option addresses Reputation risks, as analysed utilising the 5x5 corporate risk matrix, as outlined in TasNetworks Risk Management Framework.

Risk Category	Risk	Impact	Likelihood	Consequence
Reputation	Aging hardware has an increased likelihood of failure - mitigated by replacing hardware	Hardware failure will cause system outages which impact normal operations; potential for significant operational effort to remediate	Rare	Negligible

The risks associated with completing this initiative are based on the assumptions that current 2017 workload is completed, and previous issues that have been faced occur again. These risks will see a negligible to minor impact if realised.

6.6 Economic analysis

Option No.	Option description	NPV	Reason got selection/rejection
0	Do Nothing		Preferred option has negative NPV, but significant mitigation of risks
1	Preferred Option	-\$2.96 M	Best mitigation of risk
2	Partially defer	-\$3.09 M	NPV almost equivalent but less mitigation of risk than preferred option

Further details of the NPV calculations can be found here:

[IT.INF.03 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-023	Existing datacentre core switch hardware will be refreshed prior to 2017 OR can be expected to serve until 2020
ITA-024	Access network hardware will be refreshed on a [REDACTED] cycle
ITA-025	Consolidation of major datacentre functions to [REDACTED]
ITA-111	Annual maintenance costs for networking equipment equate to 10% of purchase price

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.]		