

Oregon State Chief Information Office

IT Assessment. Department of Geology and Mineral Industries.

19 February 2016



Background. About DOGAMI



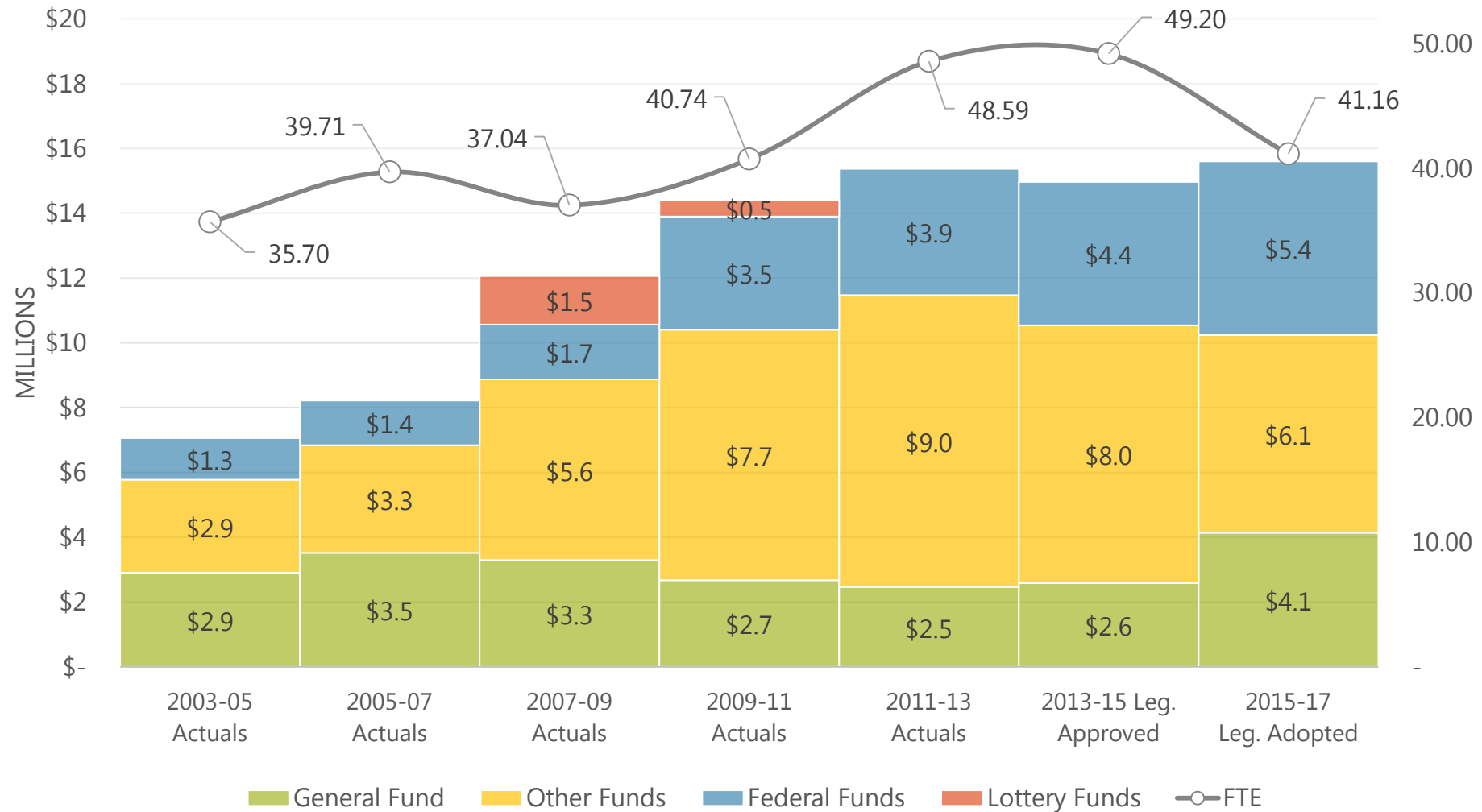
Established in 1937, the Oregon Department of Geology and Mineral Industries (DOGAMI) contributes to the safety and prosperity of Oregonians through the collection and dissemination of geoscientific information and prudent regulation.

DOGAMI is comprised of two programs including:

- The Geological Survey & Services program develops maps to inform the development of policies effecting the use of Oregon's lands and waters guiding responsible mineral development and mitigating risk of loss due to geologic hazards.
- The Mineral Land Regulation and Reclamation (MLRR) program regulates the exploration, extraction, production, and reclamation of mineral and energy resources for the purposes of conservation and second beneficial uses of mined lands.



Background. Budgetary Context



Background. The Budget Note

Budget Note 2: *The Department is directed to work with the Office of the State Chief Information Officer (OSCIO) to conduct a comprehensive assessment of the agency's information technology related operations. The assessment is to include, but not be limited to, an evaluation of the following:*

- 1) IT organizational structure, policies and practices, management and staffing, funding and expenditures, and governance;*
- 2) Inventory of current systems, hardware, software, data resources, and applications;*
- 3) Business drivers and organizational mandates for information technology and data management;*
- 4) Current operational and technical deficiencies and gaps;*
- 5) Current, and any potential alternative methods, for data exchange and providing online access to data resources;*
- 6) Operation and technical requirements for systems, data, and applications;*
- 7) Requirements necessary for any recommended changes or enhancements to IT management, staffing, funding, policies, and practices.*

A report on this comprehensive assessment is to be submitted to the Legislative Fiscal Office in December 2015 and jointly presented by DOGAMI and the OSCIO to the Joint Legislative Committee on Information Management and Technology and to the Joint Committee on Ways and Means during the 2016 Legislative session."



Assessment. Approach

Multi-disciplinary team from ETS and GEO examined:

- DOGAMI business drivers and mandates that influence how IT is currently used and industry best practices.
- Inventory of IT policies, processes, hardware, software and network.
- Analysis of core business processes; how and how well IT is used within those processes.

The team evaluated these and issued findings and recommendations.



Assessment. Concerns

The key concerns identified by OSCIO were:

- Risk of loss of data and data breaches for all data storage devices.
- Lack of physical security for all data storage devices.
- Noncompliance with state-wide IT security policies and procedures.

“The current server-storage architecture is a technological and maintenance dead-end. It cannot be efficiently or economically scaled up any further. A future model will require the agency to redesign both its computer (server) and storage architectures in order to implement more efficient storage systems (unified storage) and deduplication processes (no multiple copies, software defined deduplication).”



Assessment. High-level Findings

One of DOGAMI's core missions is the collection, analysis and processing of very large quantities of geological and geospatial data.

The agency's primary challenge is to afford to maintain the massive storage and data transfer capacities that their mission requires.

The assessment identified a large number of deficiencies but linked them all to three primary areas of concern:

1. Lack of dedicated resources for IT management and operations.
2. Lack of understanding on how to operate and comply with State purchasing and procurement policy.
3. Overburdened trying to support the entire stack of IT operation in-house.

"The difficulties in making Lidar data available are not unique to DOGAMI, but are faced by any agency or company responsible for Lidar data distribution." – IT Assessment



Critical Needs. IT Staffing, Policy & Procurement

Position Descriptions. Although DOGAMI's organization chart lists 11 employees as Information Services Specialists, this is a long-standing HR classification error. The agency has no staff that are fully qualified in IT management.

Staff Augmentation. Primary IT functions are performed by a contractor, limited to \$10,000 per year and by those agency staff who have the time, inclination and skills to perform the necessary duties.

IT Staffing. Without IT staff the agency struggles to:

- Develop IT planning and strategy.
- Maintain proper security standards.
- Manage data storage systems and recovery.
- Network communication and information distribution.

Procurement. Without an understanding of State procurement processes and policy the agency struggles to fixing the problems it knows about.



Critical Needs. Storage

DOGAMI will run out of storage for its data some time in 2017 and cannot afford to build and support more in the current infrastructure.

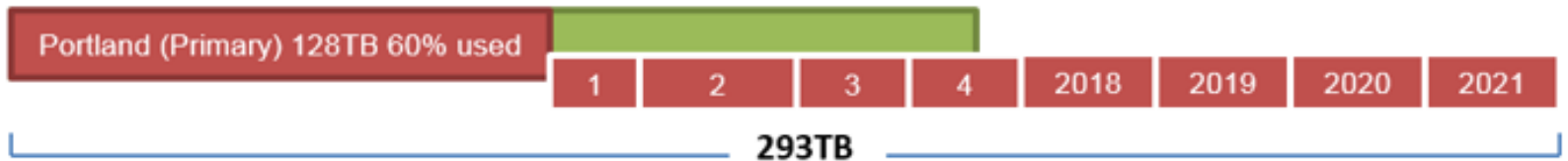
Current Storage



Growth Through Current Biennium

1. 15TB pending upload in office
2. 35TB scheduled transfer in April '16
3. 25TB forecast growth 2016*
4. 25TB forecast growth 2017

Forecast Storage Need Through 2021**



* The forecast figure is the agency's "best guess." Actual usage may be higher.

**2021 Is the accepted 5 year life of any new storage system purchased in 2016



DOGAMI Recommendations

Short Term Recommendations

1. Work with OSCIO on short term tactical planning and costs.
2. Mitigate urgent IT infrastructure issues.
 - a. Evaluate migrating non-core IT services to Enterprise Technology Services.
3. DOGAMI staff work with DAS procurement on process and procedure for IT contracting and purchasing.
4. Review and improve current IT support contracts. Supplement if possible to add additional resources.



DOGAMI Recommendations

Long-term Recommendations

1. DOGAMI should work with the OSCIO and ETS to develop an IT Strategic Resource Plan for 2017-19.
2. DOGAMI should work with the CFO to develop a policy option package to implement its new IT strategy for its 2017-19 Agency Request Budget.
3. DOGAMI, in its role as lead of the Oregon LIDAR Consortium, should work on sustainability planning and budget to support the program's future data storage, processing and distribution needs.

Some key considerations:

- a) DOGAMI should look at externalizing IT services that are not part of the agency's core mission.
- b) DOGAMI should implement a technology architecture what will enable stratified data storage, support long-term business needs and leverage industry best practices.



DOGAMI Response

DOGAMI is very appreciative of the work done by ETS and OSCIO staff and in response to the most serious risks they identified and intend to take the following actions immediately:

- Engage with ETS to provide data back-up services to ensure data back-up and disaster recovery are in compliance with state requirements.
- Identify a subject matter expert to guide DOGAMI in the development of policy and procedures related to business continuity, asset management, and IT strategic planning.
- Begin discussions related to divesting DOGAMI of non-core operations such as email services, network management, Web hosting and file transfer services.

DOGAMI will also begin planning for longer term solutions and associated staffing needs and anticipates returning to the Emergency Board in the spring of 2016 to request additional funding and limitation to address deficiencies as identified in the report.



Addendums



DOGAMI Data Center HVAC



Recommendations. Divest non-core services

CURRENTLY UNDER DOGAMI MGMT

Storage
Network Mgmt.
Server Mgmt.
Email
Website
FILE Transfer
MLRR Licensing*
GIS Software Mgmt.
Desktop PC Support

IT SERVICES IMMEDEATELY AVAILABLE < 1 YEAR TO IMPLEMENT

Current service offerings exist within State-offered services or State-approved contractors to implement change with minimal disruption to existing business activities and processes.

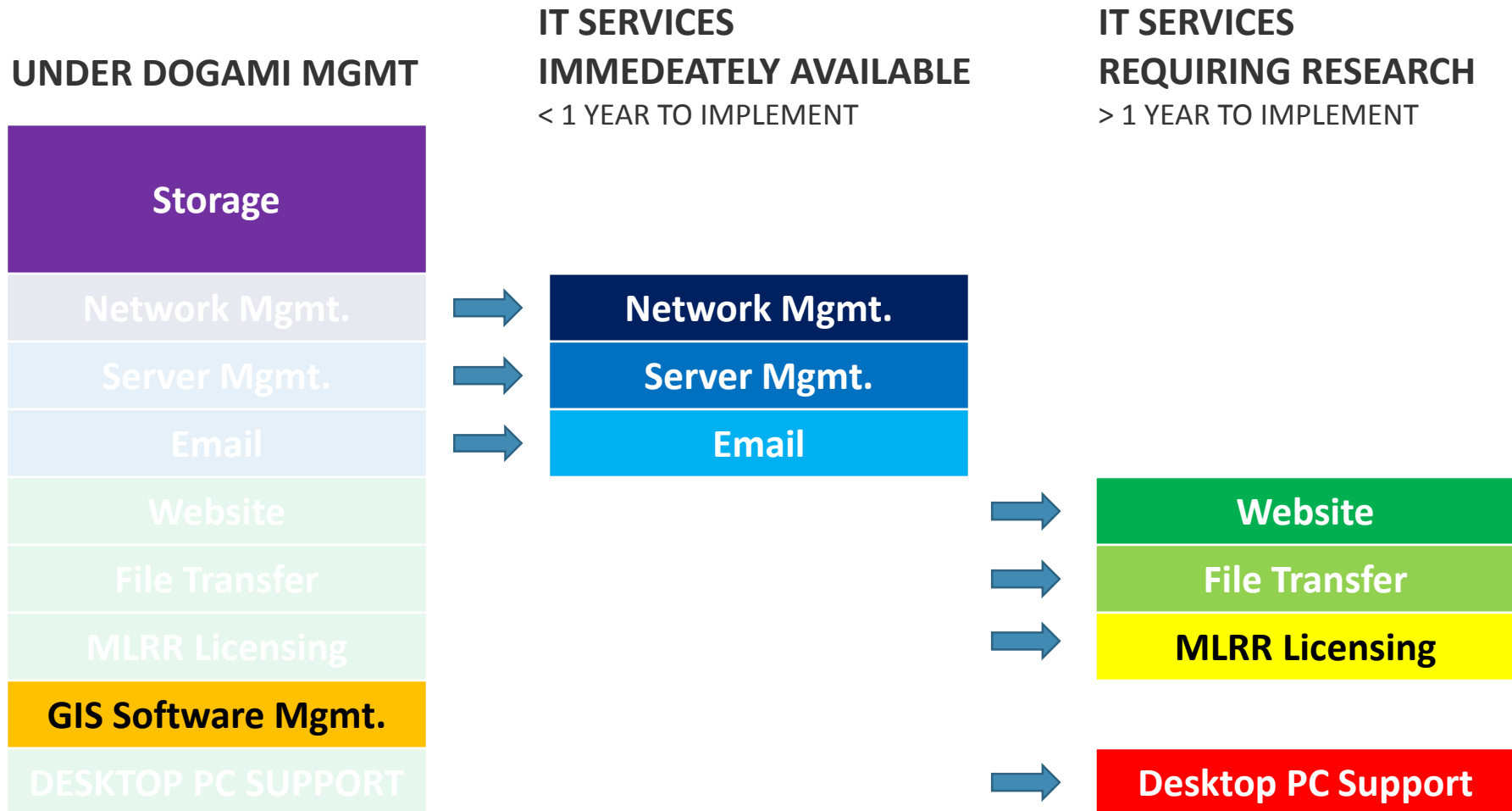
IT SERVICES REQUIRING RESEARCH > 1 YEAR TO IMPLEMENT

IT service offerings *may* exist within State-offered services or State-approved contractors. Significant planning will be required to migrate and adjust business activities and processes.

* Mined Land Regulation & Reclamation (MLRR)

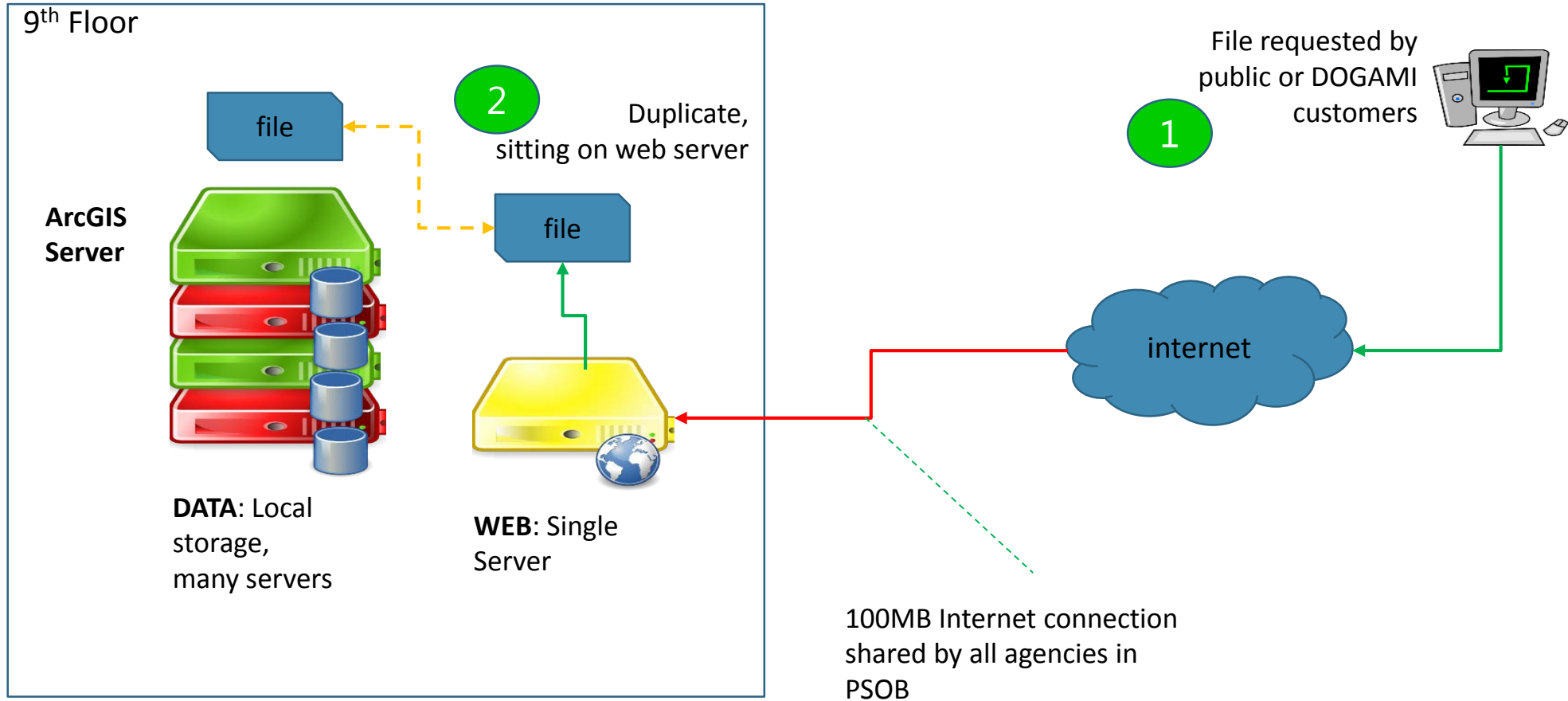


Recommendations. Divest non-core services



DOGAMI, Portland State Office Building

9th Floor

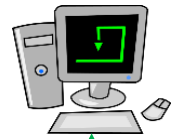


Data Storage. Current State (as built)



DOGAMI

Portland State Office Building
9th Floor



DOGAMI staff



File Server:
Working files

Data Center

Virtualized Servers,
Unified Storage

Web
ArcGIS



All files

file

2

10GB link: Data Center to
DOGAMI

File requested by
public or DOGAMI
customers

1



internet

100MB dedicated
DOGAMI Internet

100MB Internet
connection shared by all
agencies in PSOB



Data Storage. Best Practice Architecture