PoINT Archival Gateway

S3 Gateway for Tape

Solution Overview

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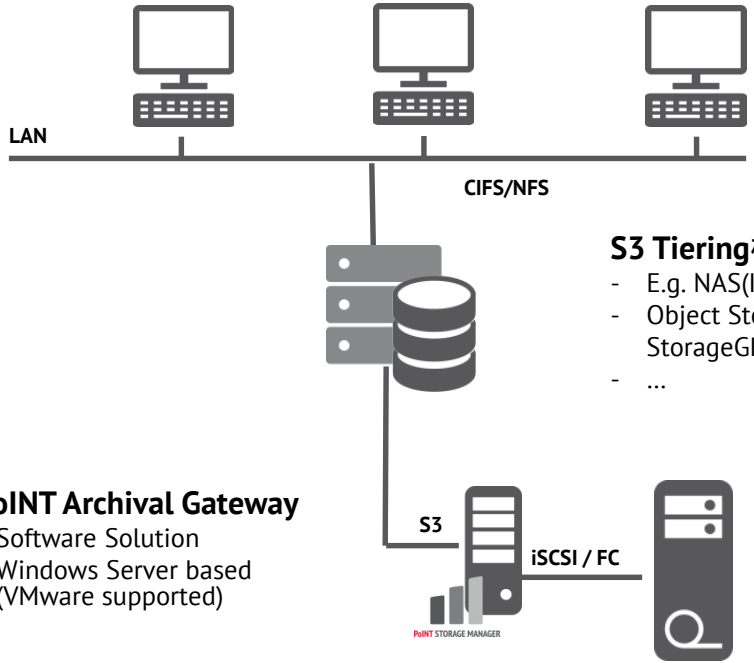
Configuration Overview



S3 Tiering機能を持つストレージシステム

- E.g. NAS(Isilon Cloudpools, NetApp CloudVolumes)
- Object Storage(Cloudian Hyperstore, NetApp StorageGRID..)
- ...

PoINT Archival Gateway

– Software Solution
– Windows Server based (VMware supported)

Tape Storage

- Libraries (Tape)

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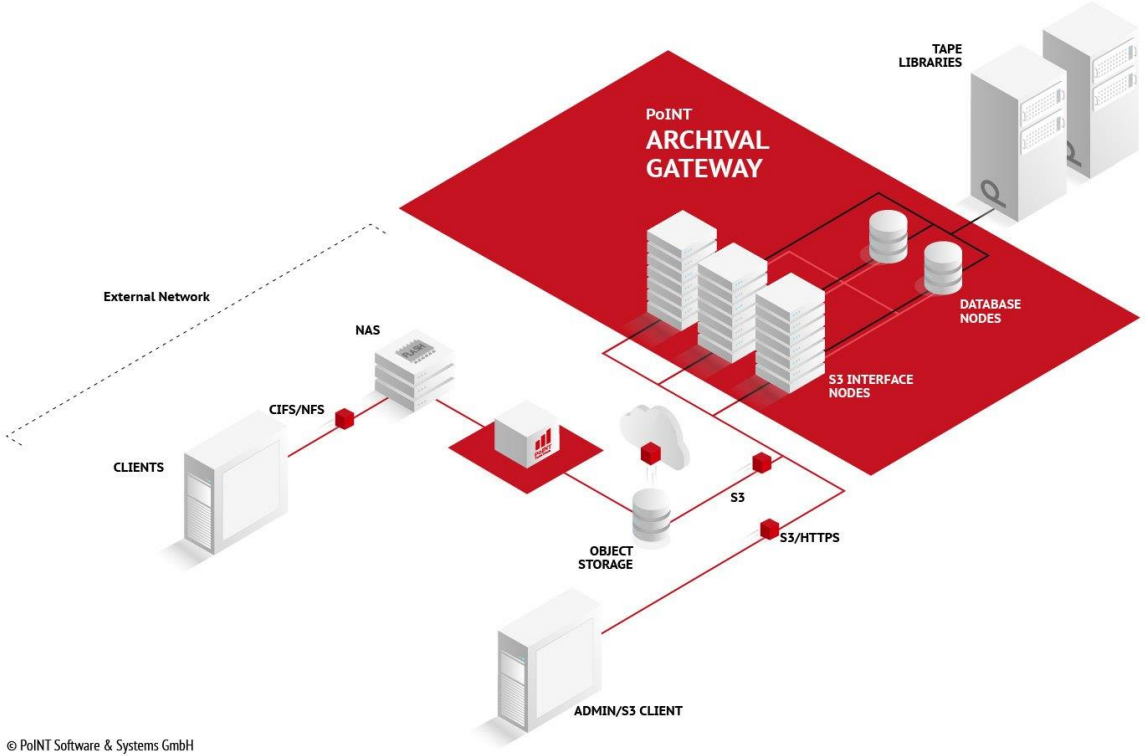

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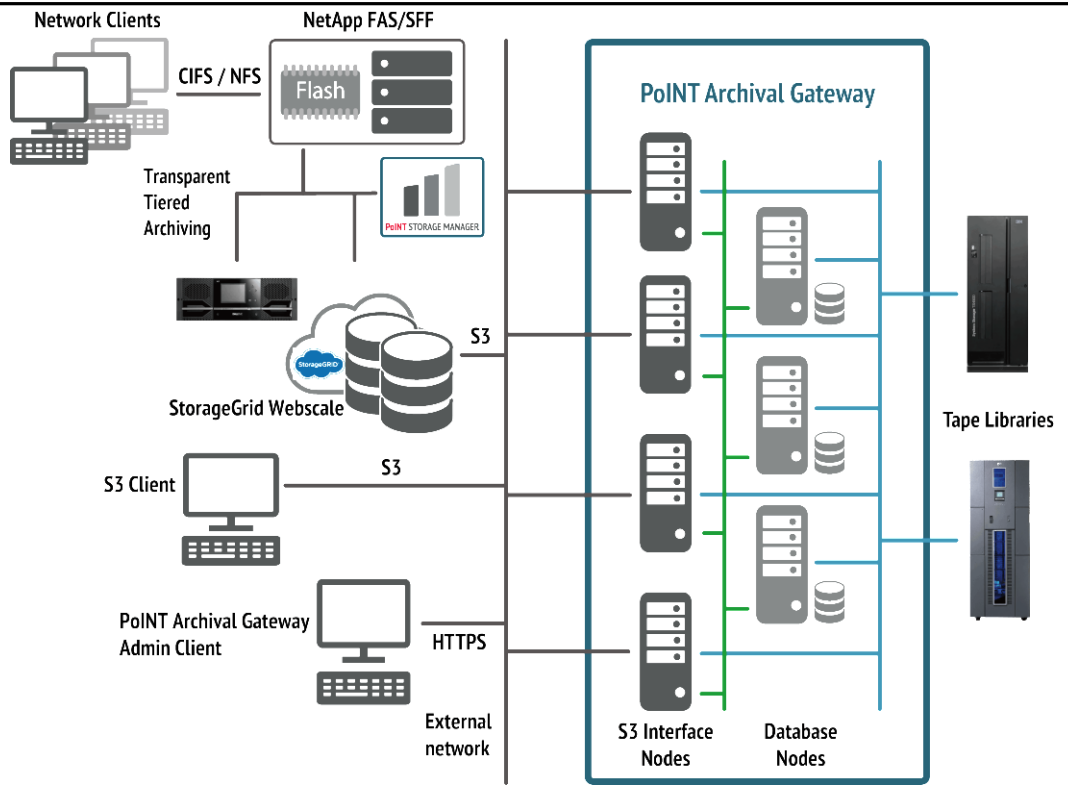
Configuration Overview 2



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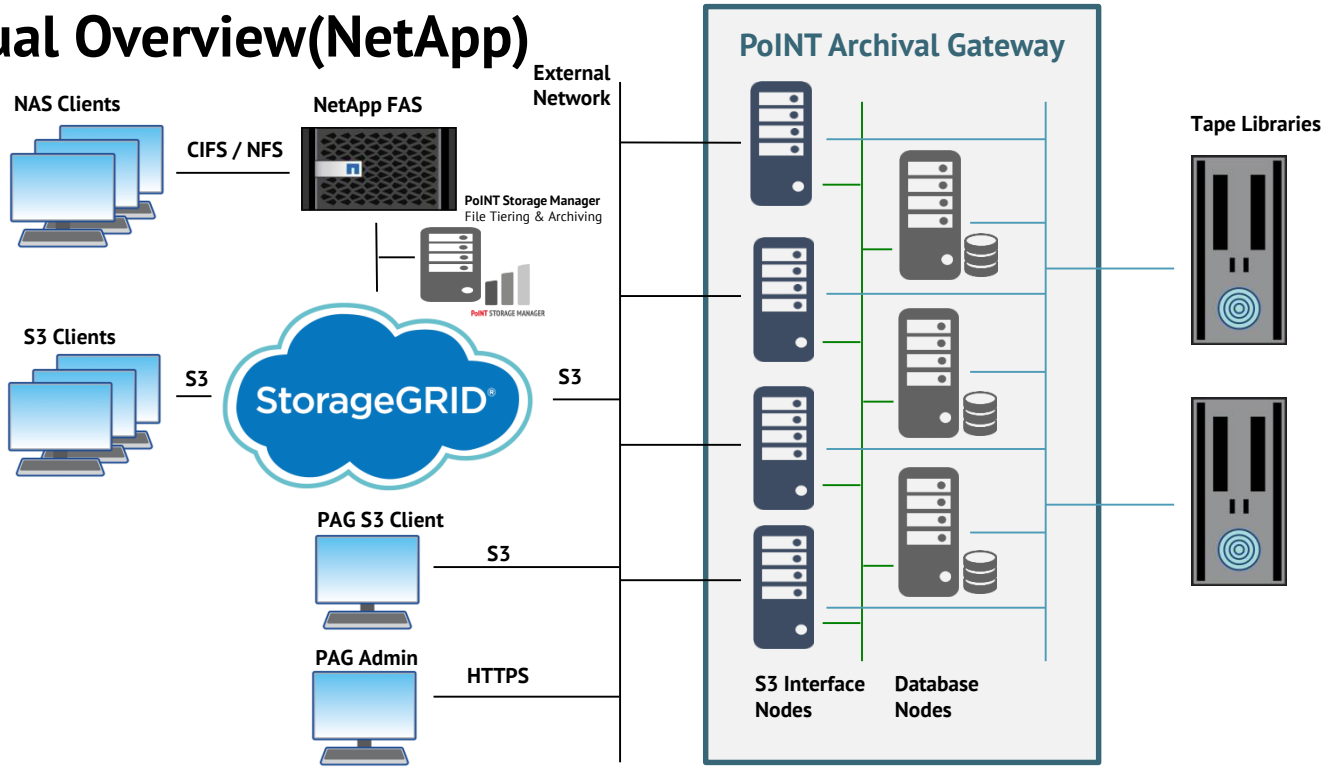
Conceptual Overview(NetApp)



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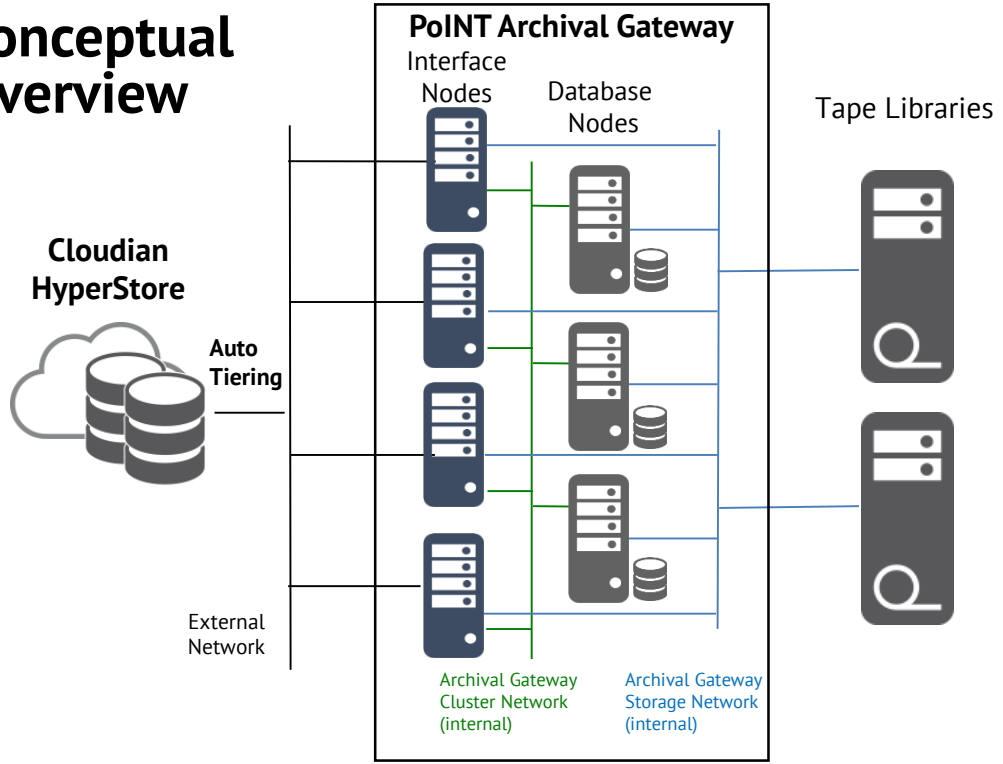
Conceptual Overview



Interface Node

- Webサービス機能 (i.e. S3 REST API, Load Balancer)
- AWS S3 MPU(Multi-Part-Upload)にスケーラブルに対応
- データキャッシュ機能 (i.e. リードと先読みキャッシュ)
- データエンコード機能 (e.g. erasure coding, Hash演算, 暗号化)
- ドライブ管理機能 (LTOドライブを直接制御 read/write)
- メタデータキャッシュ機能 (e.g. object metadataの先読み)
- データベースノードとの通信機能 (メタデータの共有)
- MPUの要件に応じてクラスター構成が可能

Database Node

- データベース管理機能
  - オブジェクトとメタデータのサービス
  - 動作設定のデータベース
  - Includes synchronous replication, backup and caching
- ライブラリー管理機能
  - ライブラリーのメディア移動の管理
- システム動作の監視と管理
- システム動作設定の管理(管理用Webサーバー)

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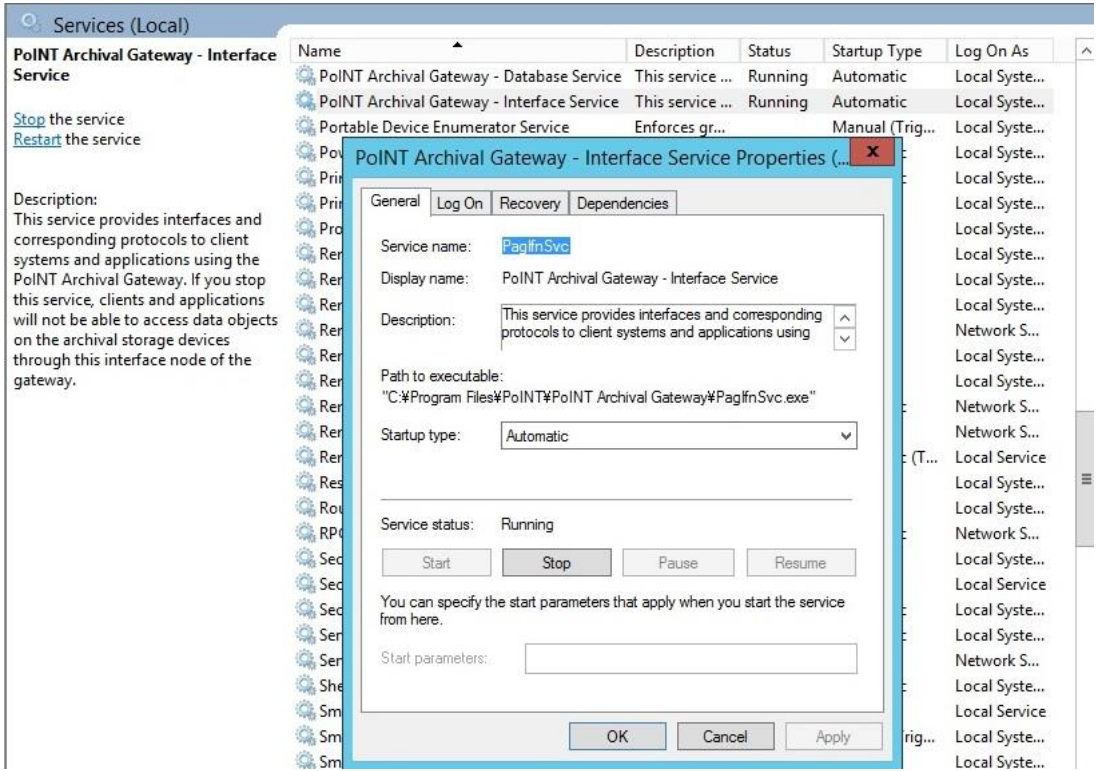
Interfaceノードとdatabaseノードはサービスとして稼動します。
最小構成として、1台のサーバーで同時に稼動します。



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管理Webのスクリーンショット

管理WebはIISのアプリケーションとして稼動します。

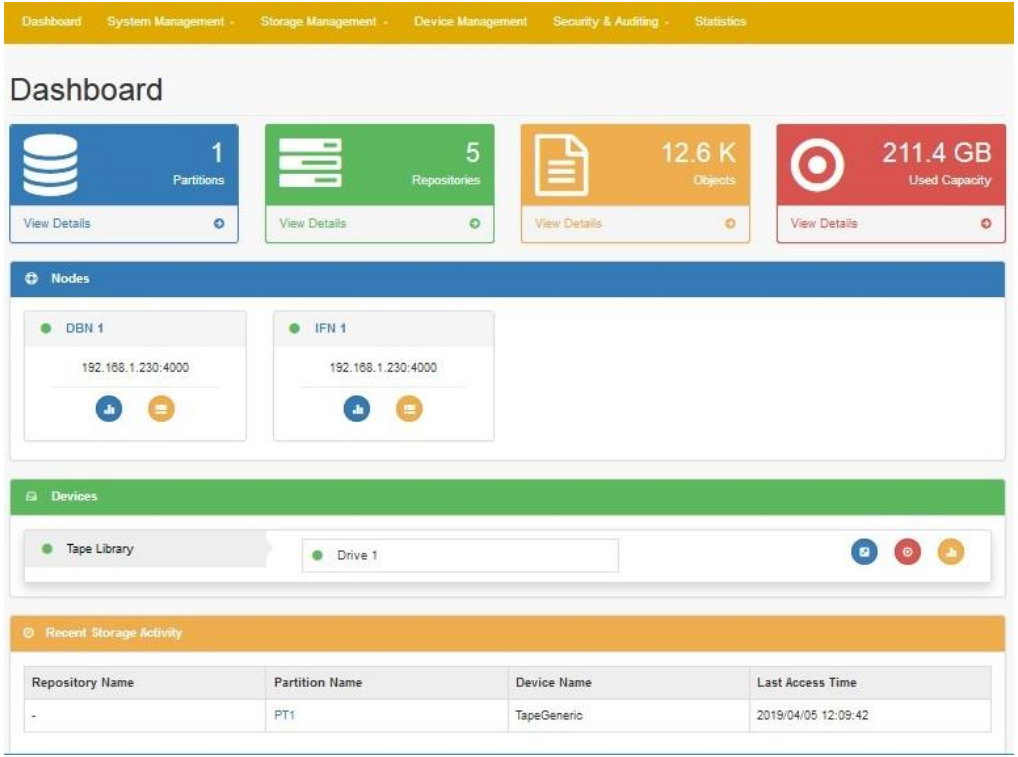
System Cluster Nodes

Database Nodes

Name	Role	Address	Status	Logs	Statistics	Remove
DBN 1	Active	192.168.1.230:4000	Up			

Interface Nodes

Name	Role	Address	Status	Logs	Statistics	Remove
IFN 1	Active	192.168.1.230:4000	Up			



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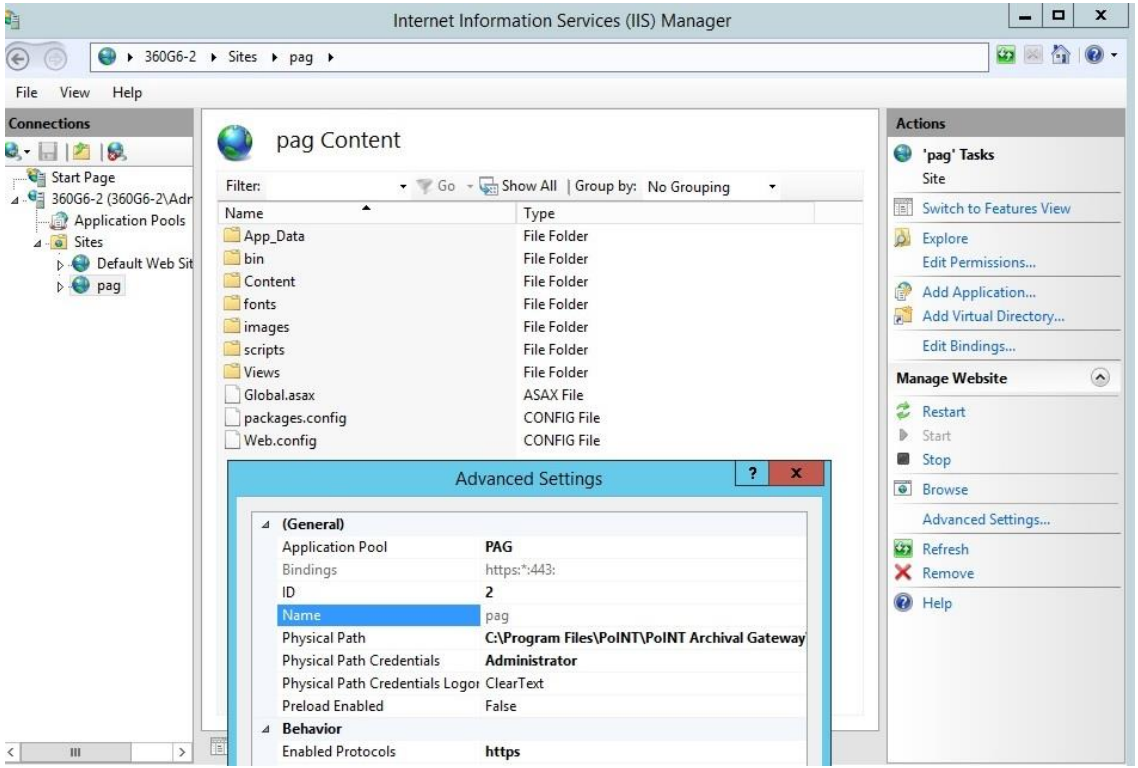
管理WebはIISのアプリケーションとして稼動します。



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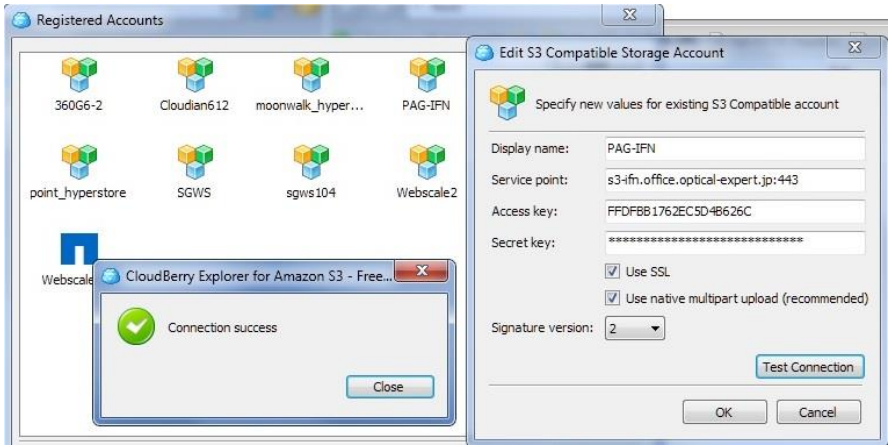
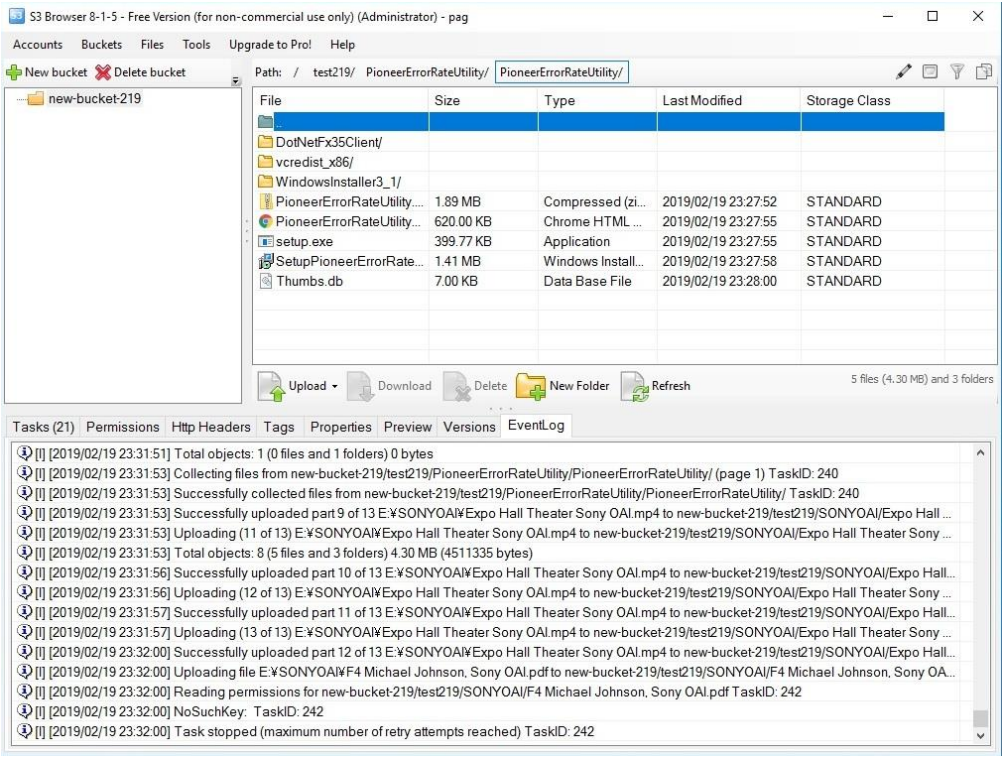
S3クライアントからPAG/INTノードへの接続





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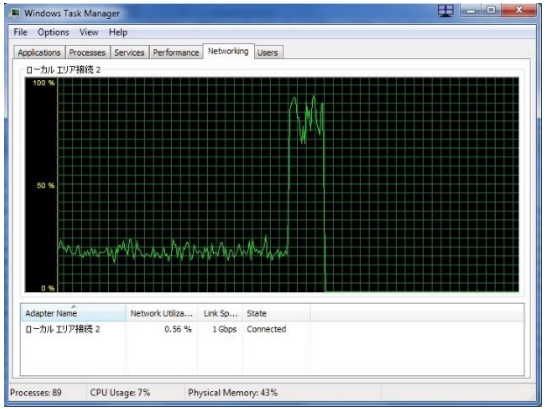
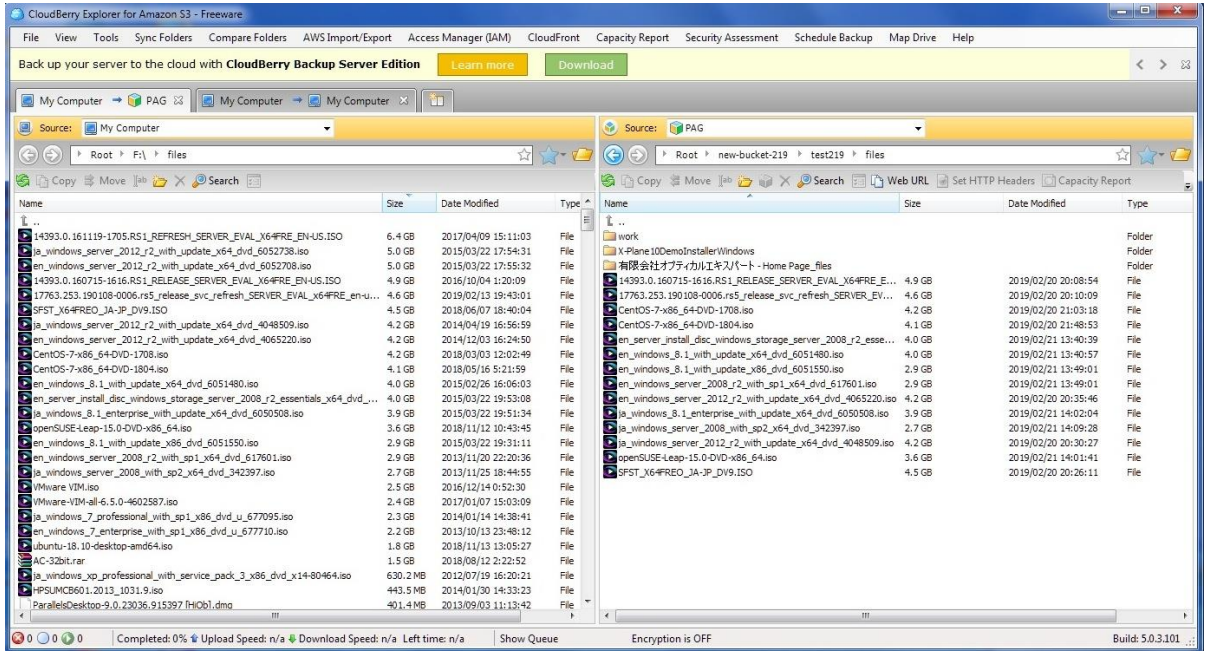
S3クライアント(CloudBerry)からPAG/INTノードへの接続





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システムの稼動状況はリアルタイムで表示

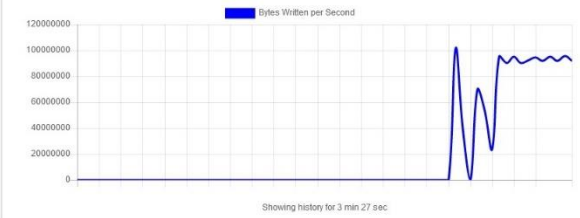
Statistics Information

Expand All

Select Source: Tape Library

Filter:

Source	Type	Current Count	Units/Sec	Chart
Drive 1	Objects Read	0	0	
Drive 1	Objects Written	1	0	
Drive 1	Bytes Read	131072	0 Byte/s	
Drive 1	Bytes Written	4225630208	88.38 MByte/s	



Database Network	Connections Accepted	0	0	
Database Network	Connections Closed	0	0	
Database Network	Connections Refused	0	0	
Database Network	Connections Failed	0	0	
Database Network	Bytes Received	4258860	255 Byte/s	
Database Network	Bytes Sent	16127040	1.27 KByte/s	
S3 Network	Connections Accepted	21	0	
S3 Network	Connections Closed	19	0	
S3 Network	Connections Refused	0	0	
S3 Network	Connections Failed	0	0	
S3 Network	Bytes Received	12113870168	12.25 MByte/s	

S3 Network	Bytes Sent	33343	0 Byte/s	

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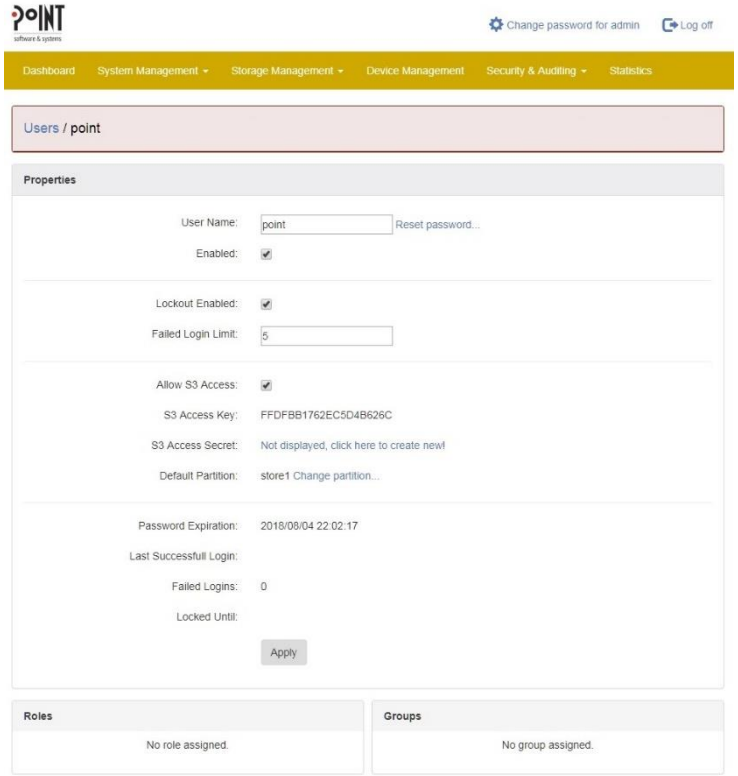
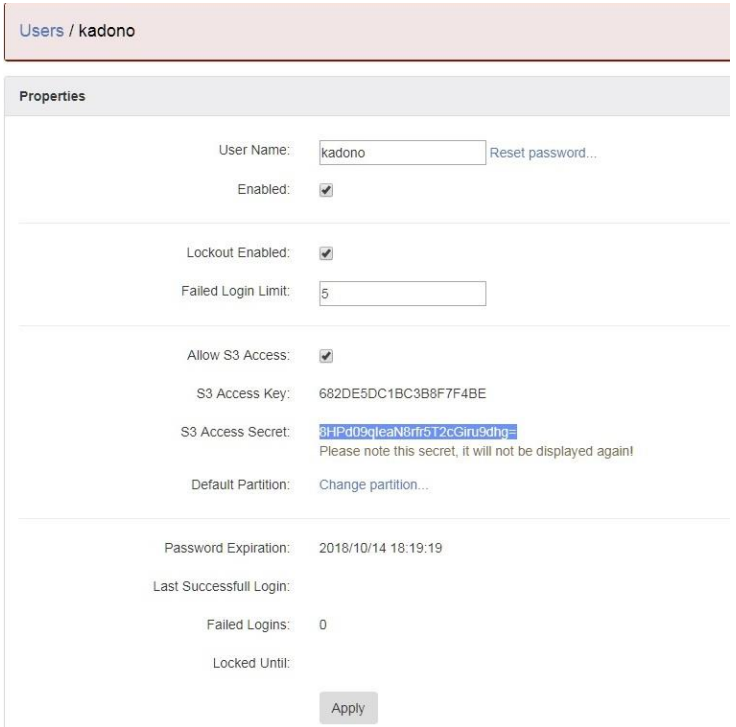
PAG管理Webから
User情報と作成





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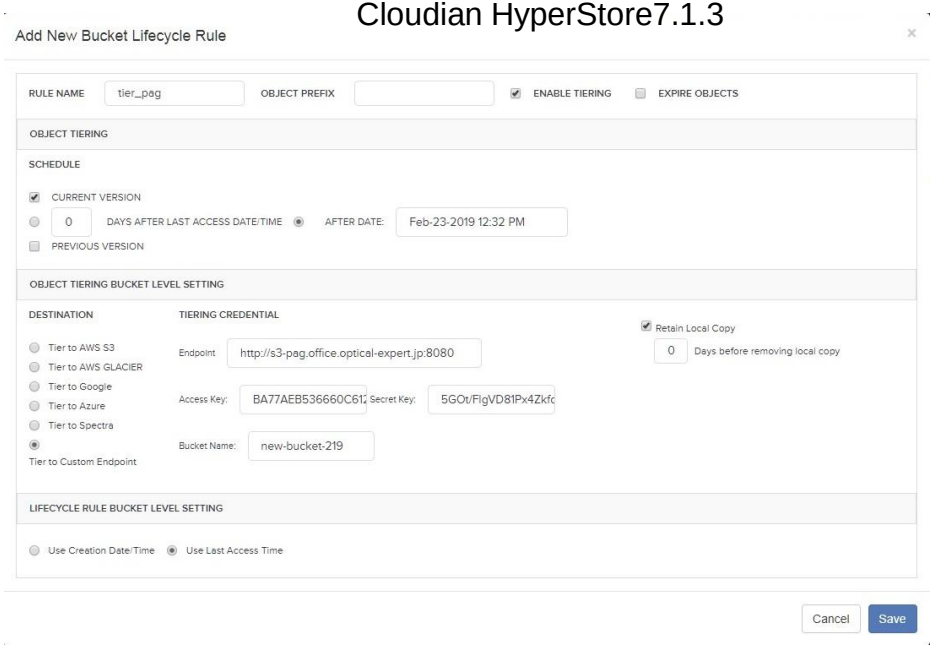
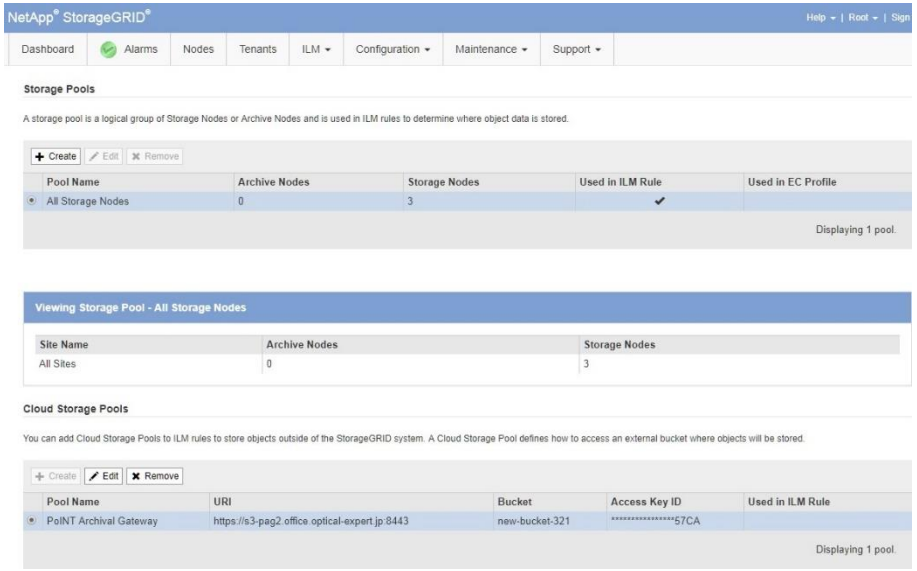
Object StorageからのS3 Tiering 接続

Cloudian HyperStore7.1.3



NetApp StorageGRID11.2 Cloud Storage Pool



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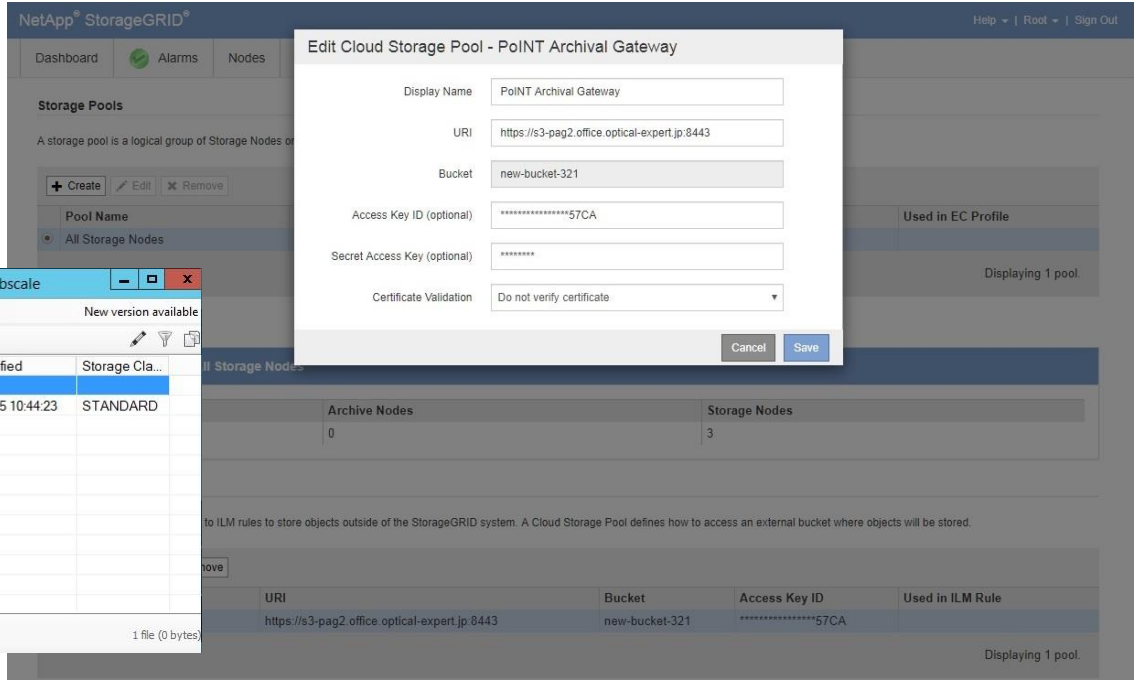
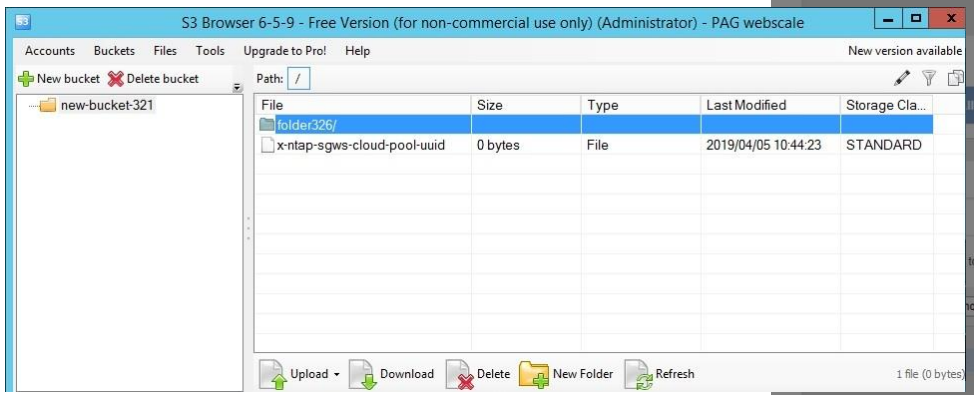
StorageGRID11.2 Cloud Storage Poolとして稼動

Cloud Storage Poolとして設定されると
x-ntap-sgws-cloud-pool-uuidが作成





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StorageGRID11.2 ILM Rule設定

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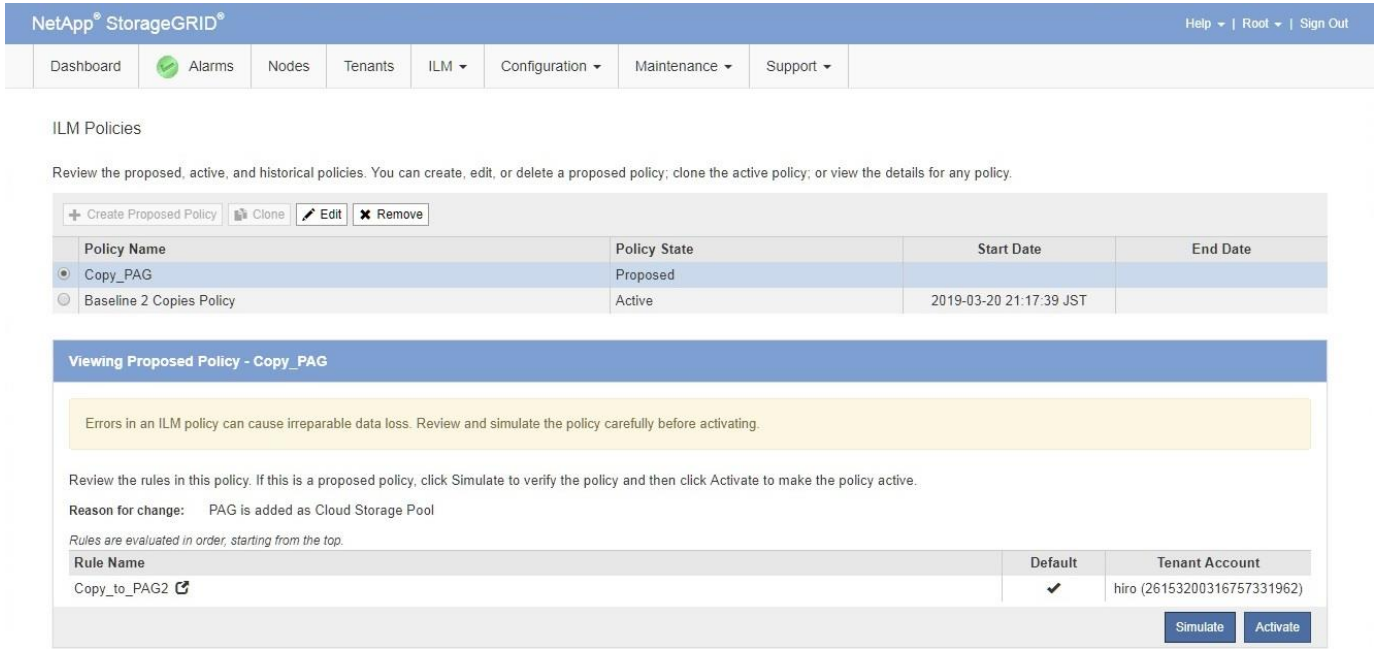
StorageGRID11.2 ILM Policy設定 -1



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StorageGRID11.2 ILM Policy設定 -2

ILM Policies

Review the proposed, active, and historical policies. You can create, edit, or delete a proposed policy; clone the active policy; or view the details for any policy.

+ Create Proposed Policy | Clone | Edit | Remove

Policy Name	Policy State	Start Date	End Date
Copy_PAG	Active	2019-04-16 13:57:10 JST	
Baseline 2 Copies Policy	Historical	2019-03-20 21:17:39 JST	2019-04-16 13:57:10 JST

Viewing Active Policy - Copy_PAG

Review the rules in this policy. If this is a proposed policy, click Simulate to verify the policy and then click Activate to make the policy active.

Reason for change: PAG is added as Cloud Storage Pool

Rules are evaluated in order, starting from the top.

Rule Name	Default	Tenant Account
Copy_to_PAG2	✔	hiro (26153200316757331962)

Simulate ILM Policy - Copy_PAG

Simulates the active ILM policy or, if there is a proposed ILM policy, simulates the proposed ILM policy. Use this simulation to test the current configuration of ILM rules and determine whether ILM rules copy and place object data as intended.

Object: my-bucket/my-object-key or my-container/my-object-name | Simulate

Simulation Results

Object	Rule Matched	Previous Match	
bucket322/sgws11/StoragegridWebscale11/StorageGRID_Webscale_1101.zip	Copy_to_PAG2		✖

Finish

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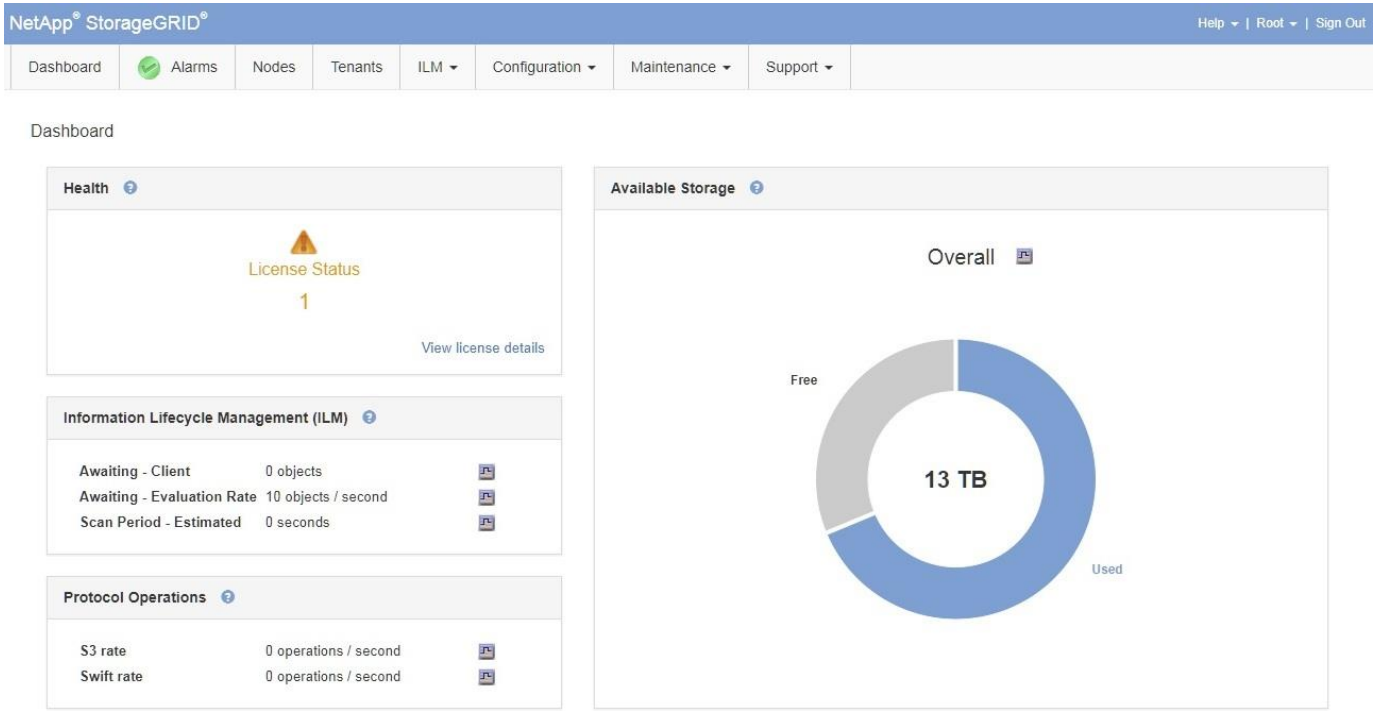
StorageGRID11.2 Grid Manager



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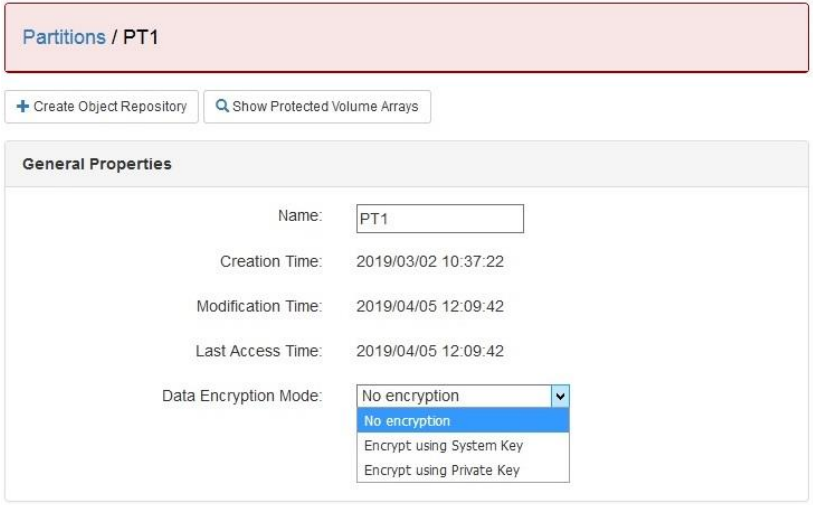
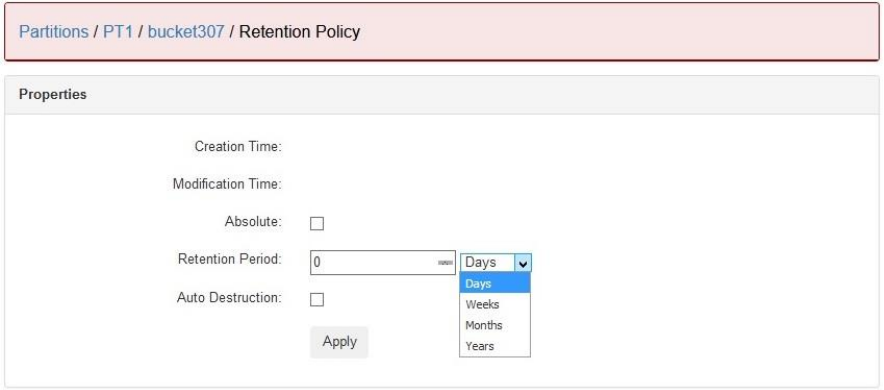
記録データの暗号化とリテンション(保管期限)の管理機能



リテンションは、バケット単位で設定



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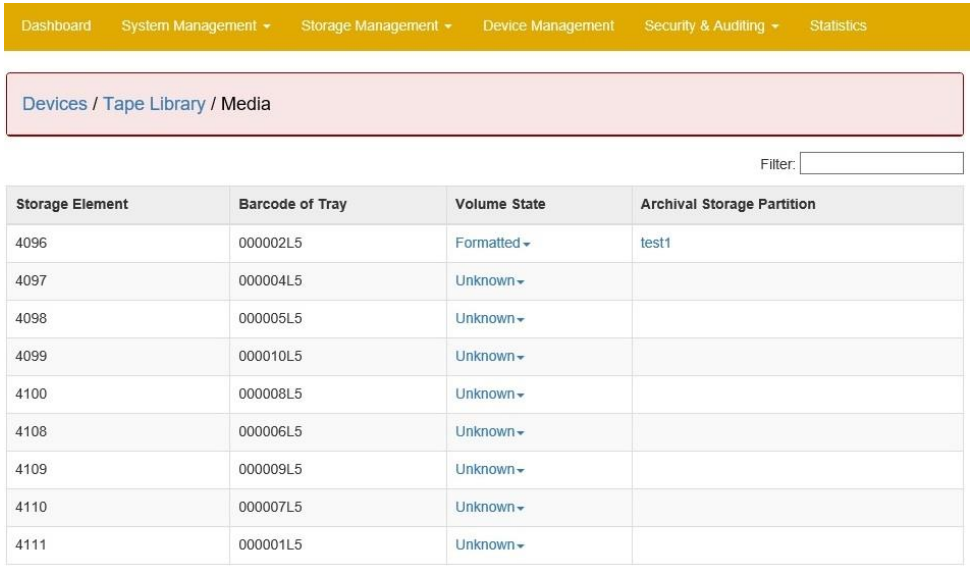
PoINT Archival Gateway Tape Support

- Drives, Loaders, Libraries
  - Native support
  - IBM, HP, Overland, Tandberg, Quantum, Spectra Logic, StorageTek (ACSLSをサポート)
  - カートリッジのオフライン管理
- フォーマット
  - 独自仕様のテープフォーマット
  - 最初のBlock0にECMA13 volume labelで開始
  - 異なったサイズのメタデータと元データを保存可能
  - ブロック単位のエラーコード



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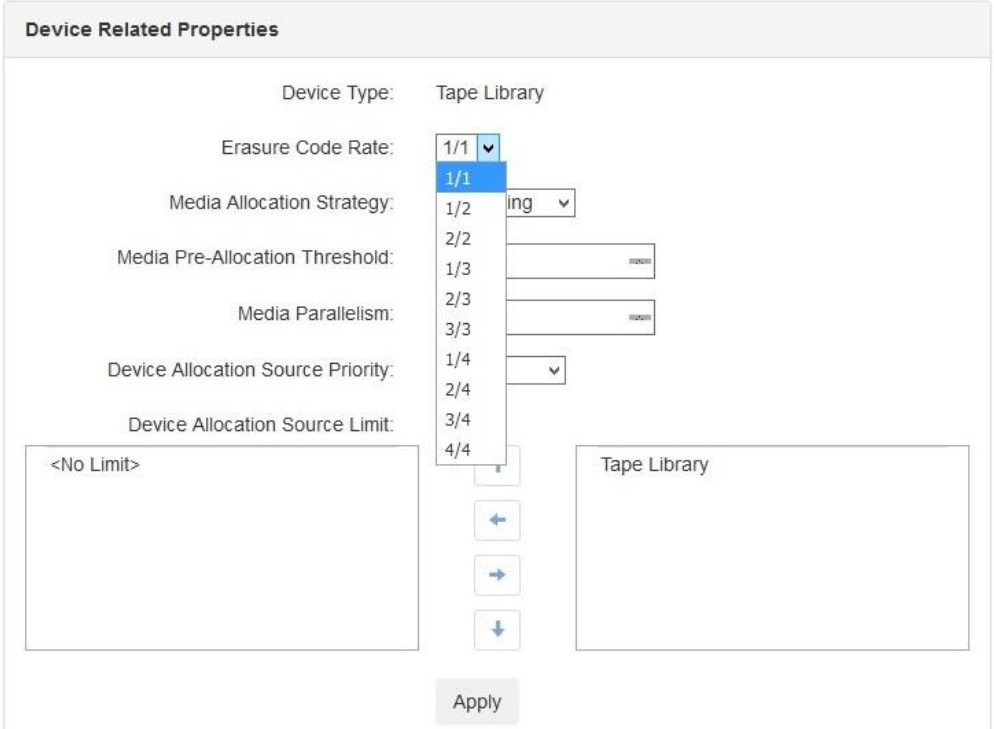
Erasure Codingでパラレルに
LTOドライブでデータ記録
3/4では、**3**データ、**1**パリティ



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システムの稼動状況の表示

Statistics Information

Expand All

Select Source: Tape Library

Filter:

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Database Network	Connections Refused	0	0	
Database Network	Connections Failed	0	0	
Database Network	Bytes Received	4258860	255 Byte/s	
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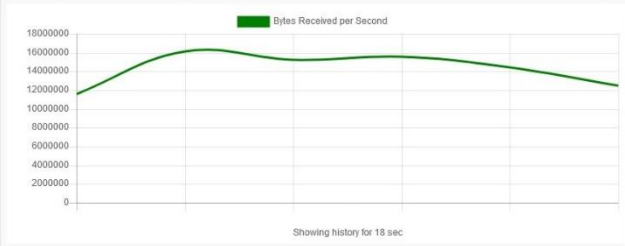
S3 Network	Connections Accepted	21	0	
S3 Network	Connections Closed	19	0	
S3 Network	Connections Refused	0	0	
S3 Network	Connections Failed	0	0	
S3 Network	Bytes Received	12113870168	12.25 MByte/s	



S3 Network	Bytes Sent	33343	0 Byte/s	

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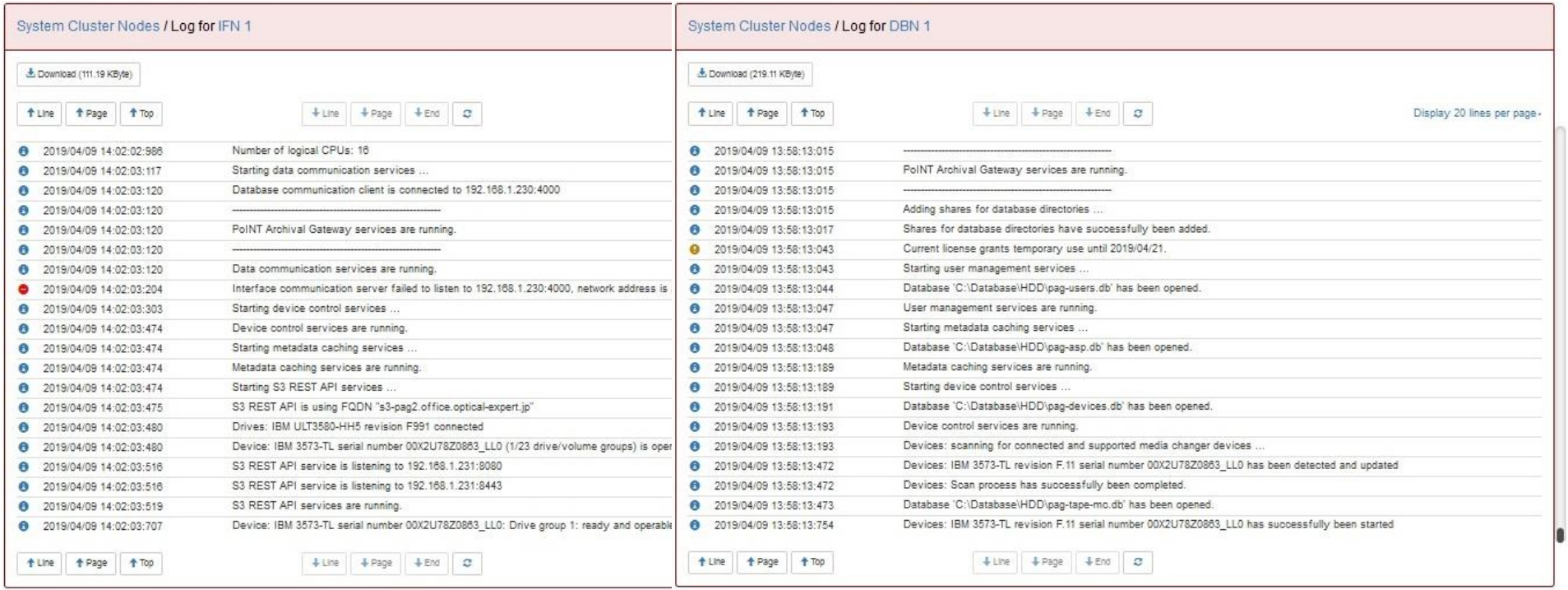

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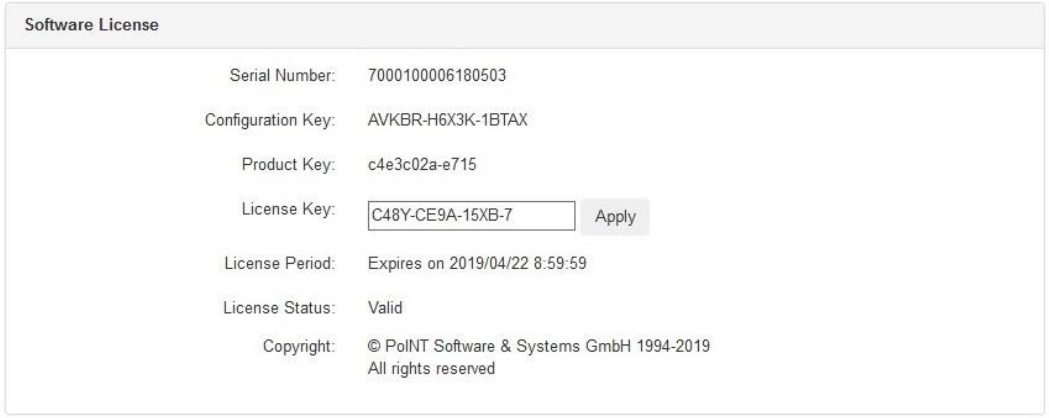
ライセンスは、使用するLTOライブラリーのスロット数

- LTOドライブは4台まで
  - メディアのミラーリング
  - メディアのオフライン管理
  - ユーザー管理、DB自動バック機能
- ライセンスの単位
  - 12スロット
  - 32スロット
  - 48スロット
  - 96スロット
  - 280スロット
  - 560スロット



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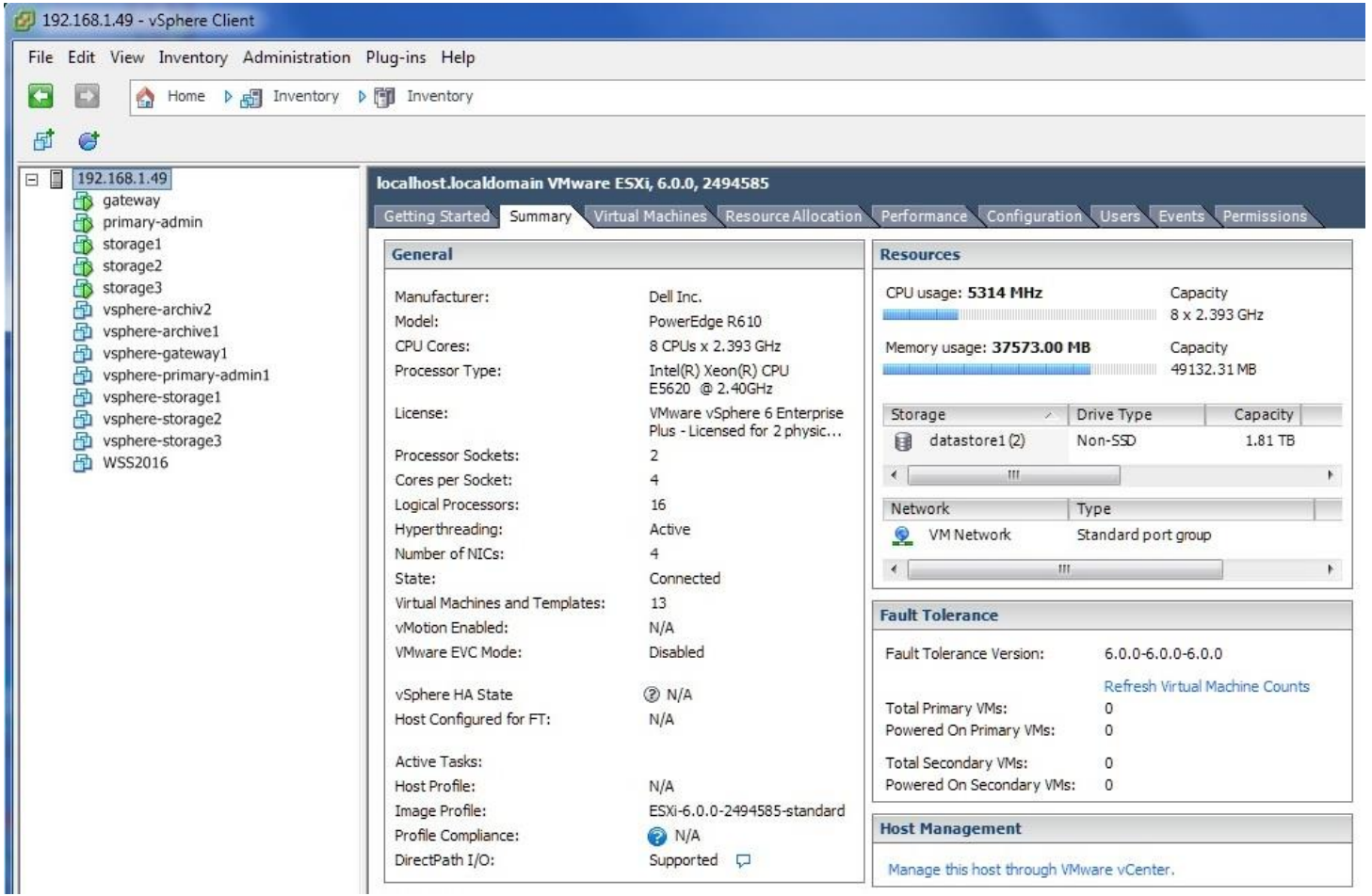
StorageGRID
11.2の稼働状況