



Formation hardware

Taouey Sénégal

537,60 Tflops

02-2022

© Atos

Bull
atos technologies

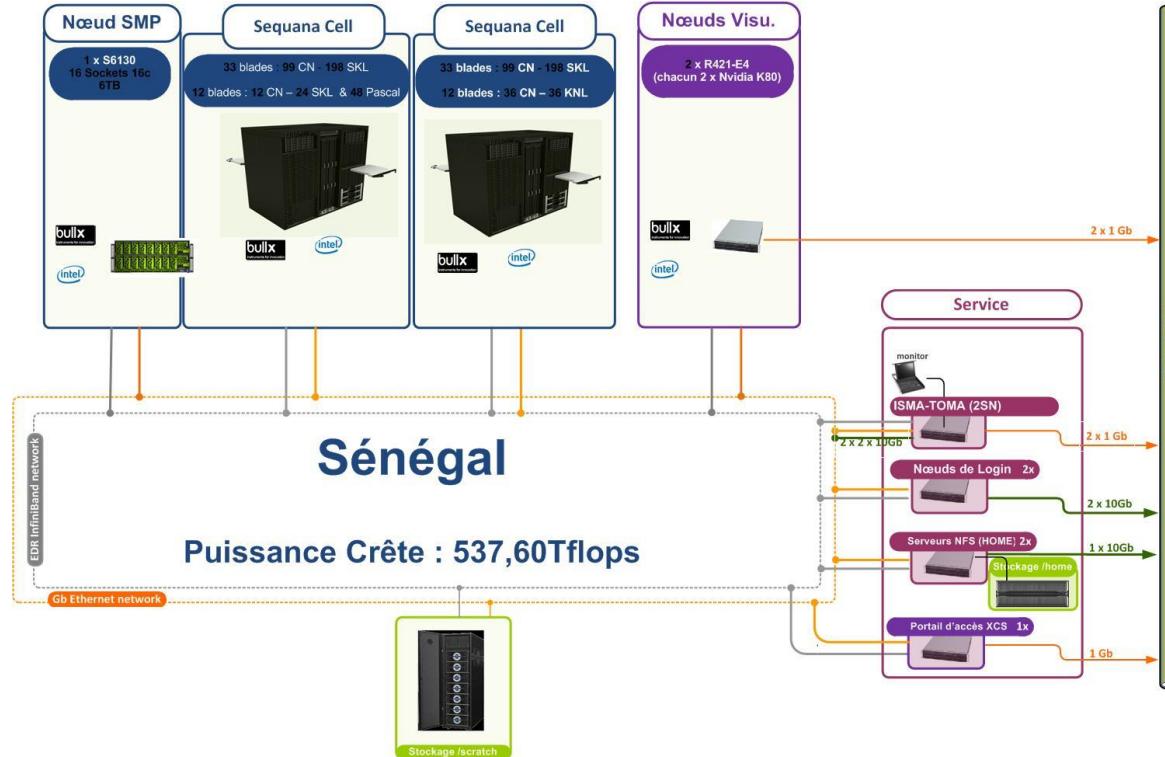
Présentation

- ▶ Tom SIEG
- ▶ Ingénieur hardware HPC
- ▶ tom.sieg@atos.net

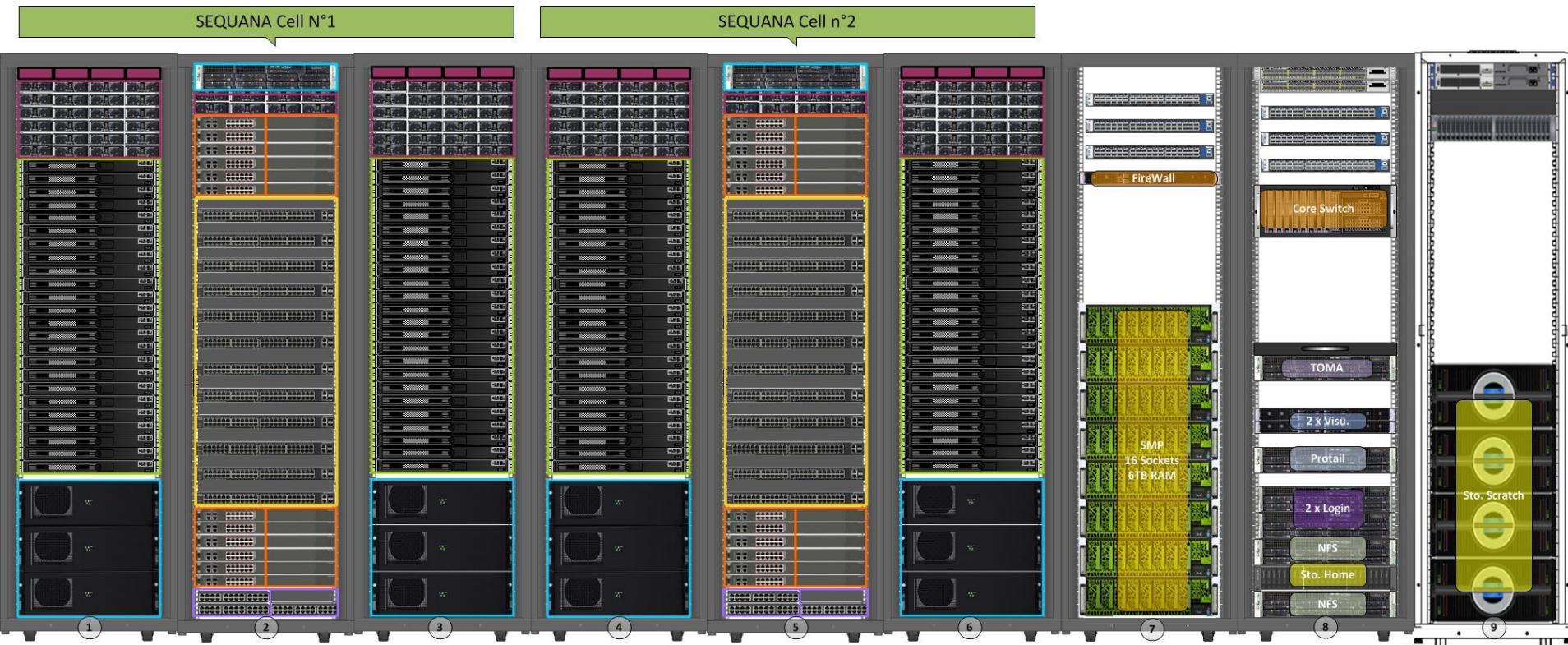
1

Architecture

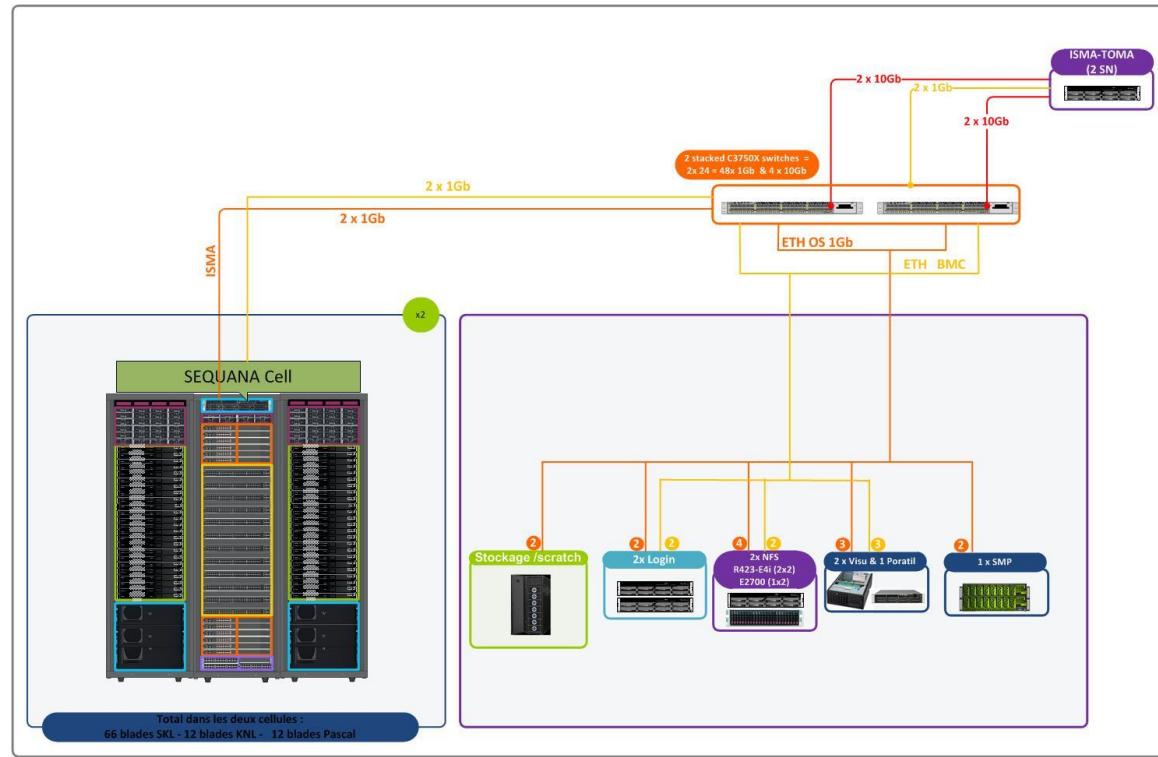
Architecture général



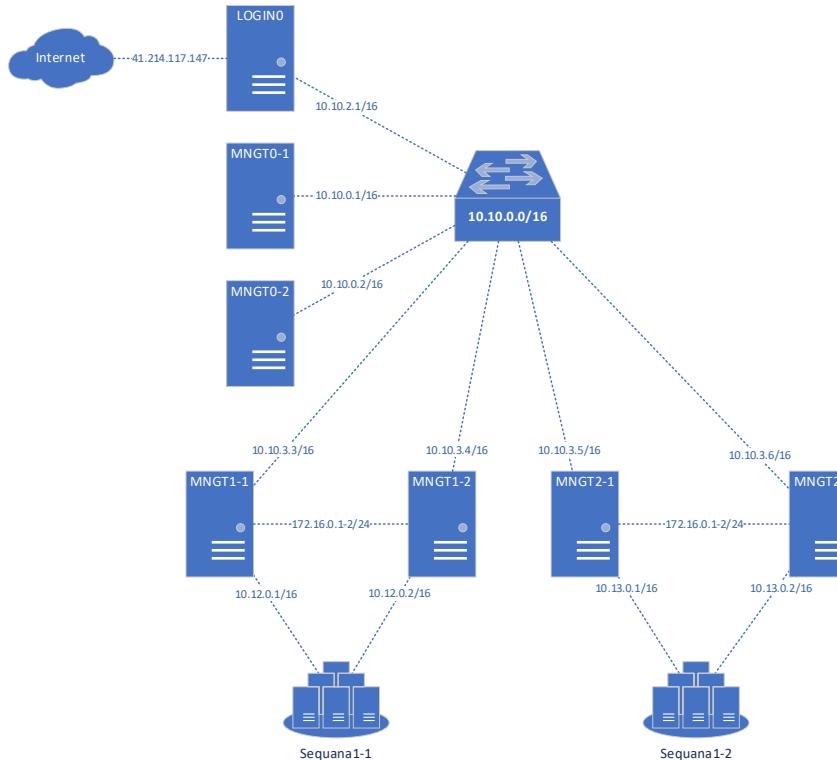
Racking



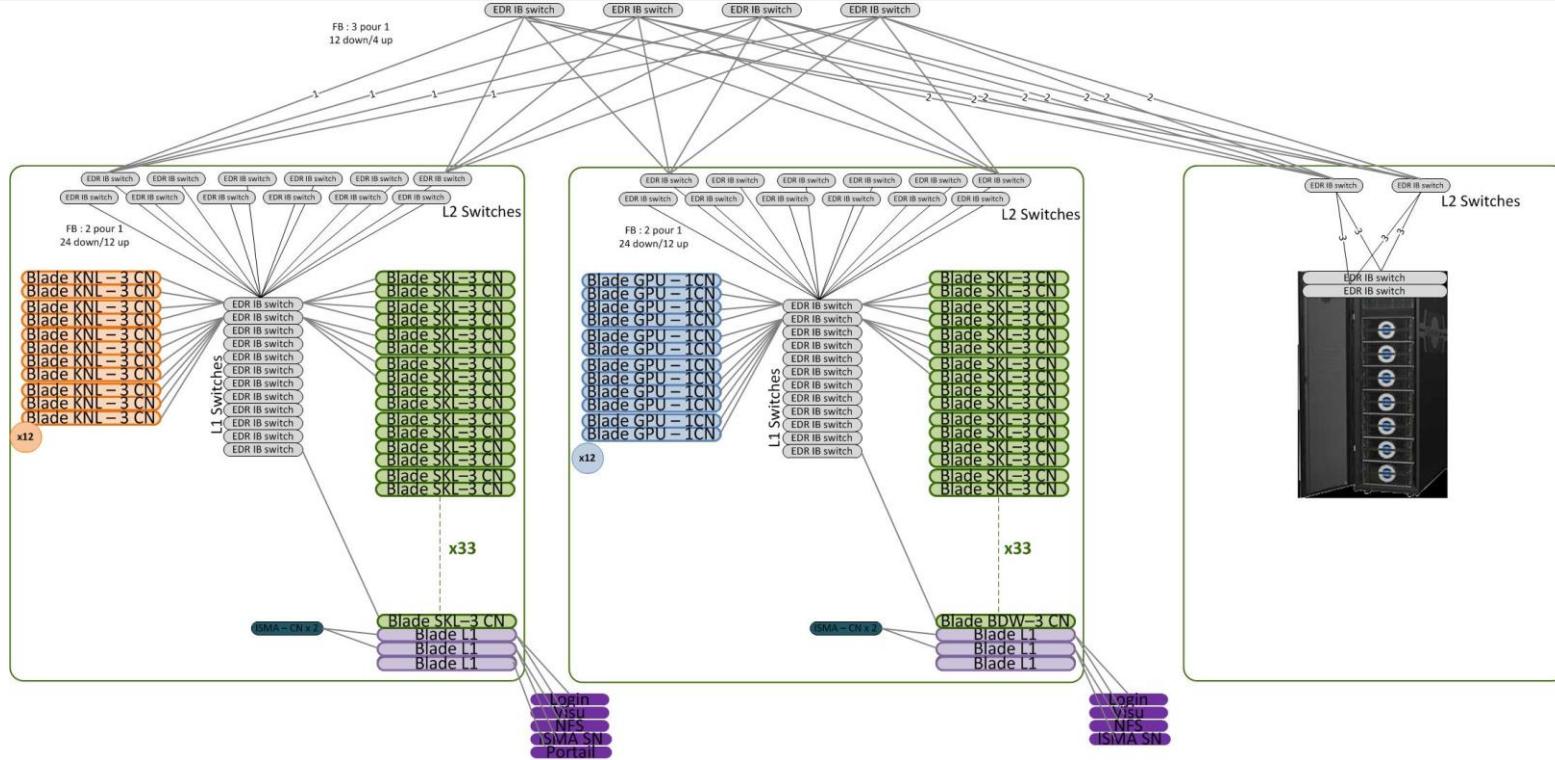
Réseau Ethernet



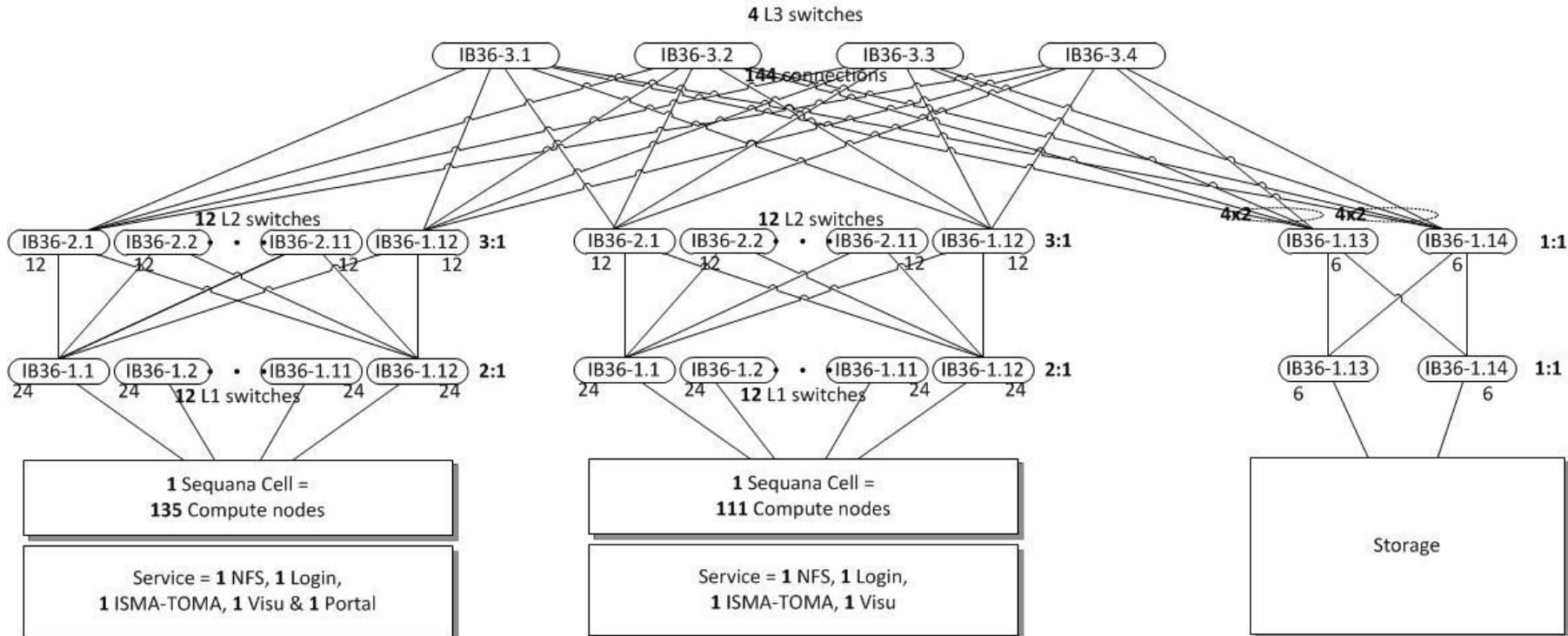
Réseau Ethernet



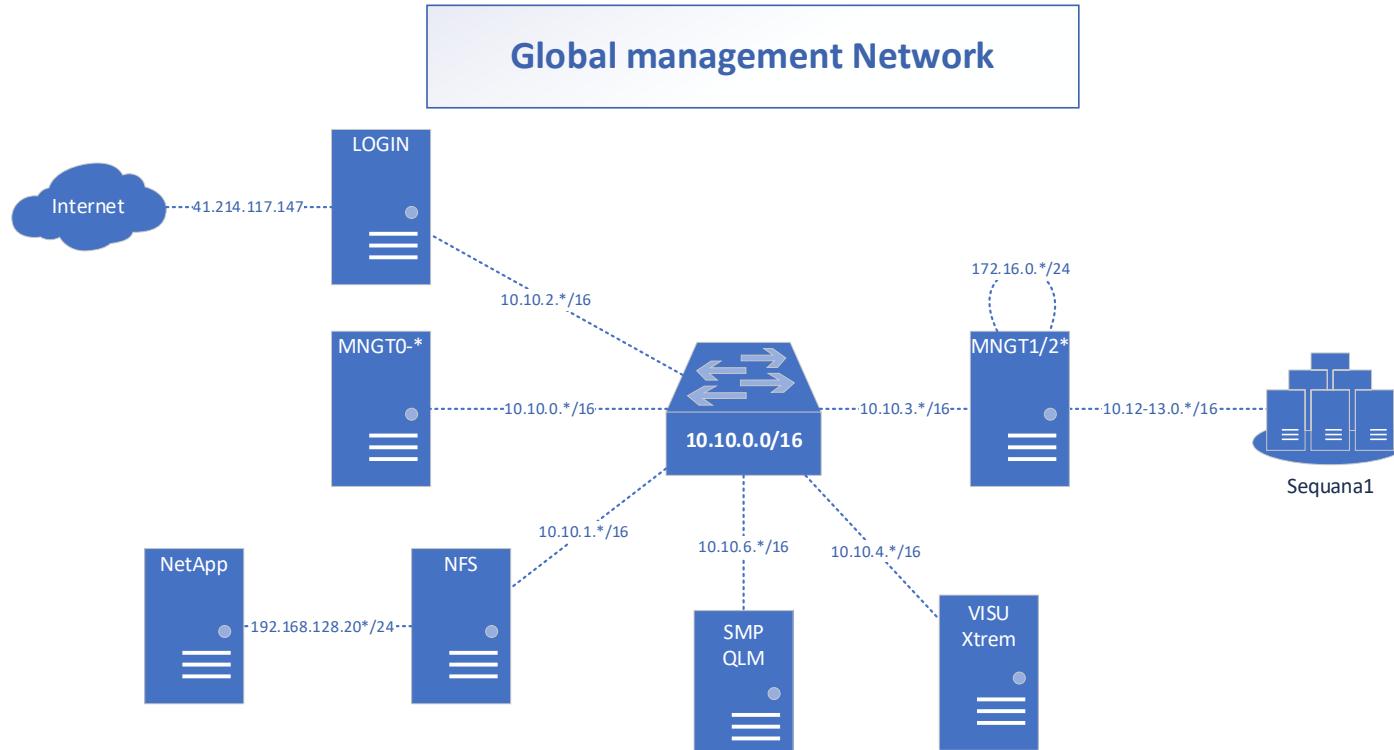
Réseau IB



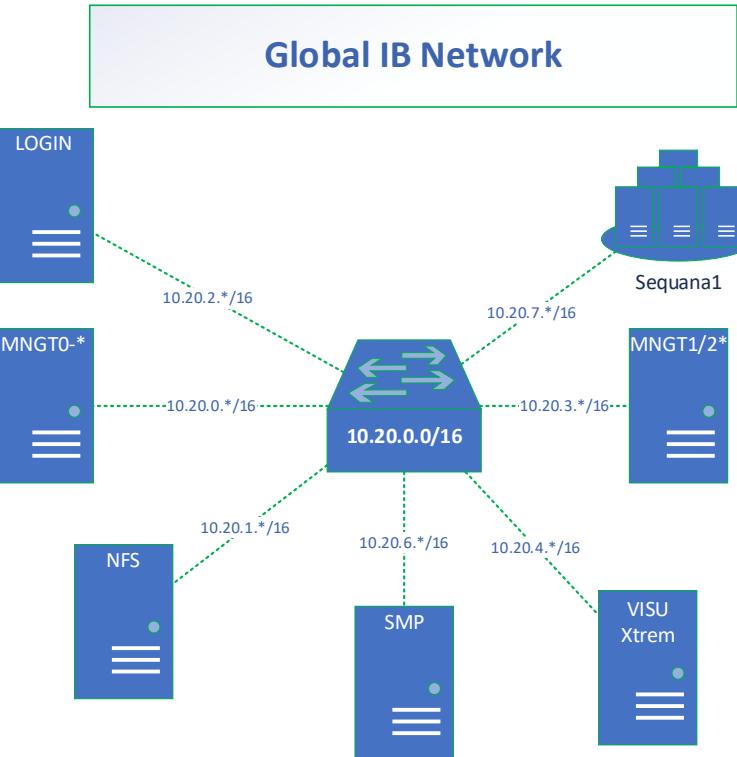
Réseau IB (détailé)



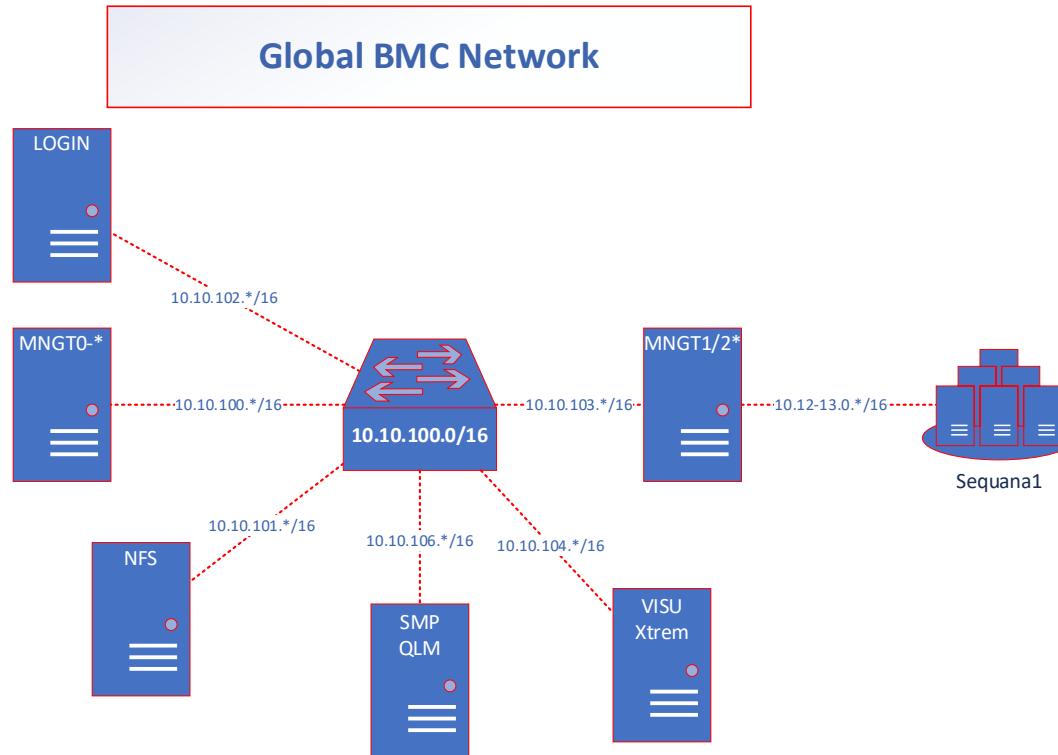
Réseau Management



Réseau IB



Réseau BMC



Type de serveurs

- ▶ Sequana X1210 SKL
- ▶ Sequana X1120 CSL
- ▶ Sequana X1125 CGP-CSL

- ▶ Bullx S6130 (SMP)
- ▶ Bullx R423-E4 (login)
- ▶ Bullx R423-E4m (Toma & ISMA)
- ▶ Bullx R423-E4i (NFS & Admin-login)
- ▶ Bullx R421-E4 (Visu)
- ▶ Mesca 3 (QLM)

- ▶ NetApp E2724 (Home)
- ▶ ClusterStor L300 (scratch)

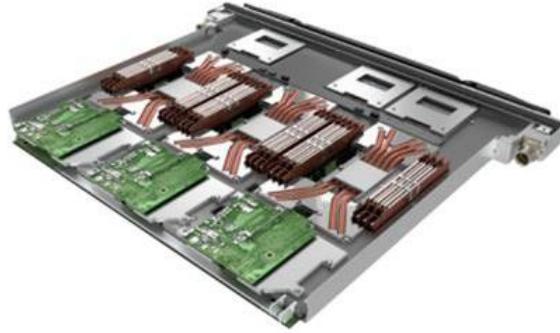
} **Sequana**

} **Service et spécifique**

} **Stockage**

Sequana

Bull sequana X1210 blade
(KNL)



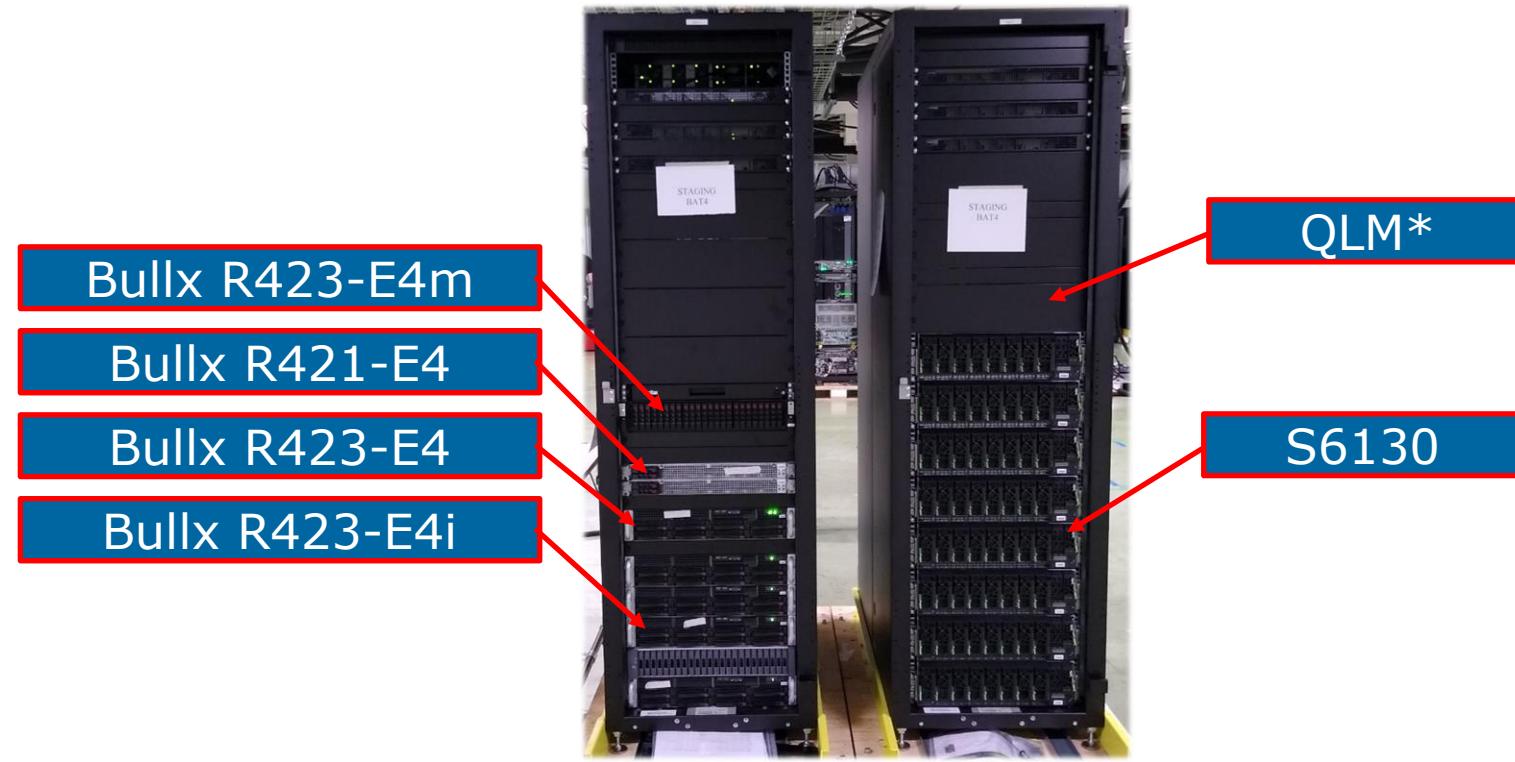
Bull sequana X1115 GPU blade
(Broadwell+Pascal)



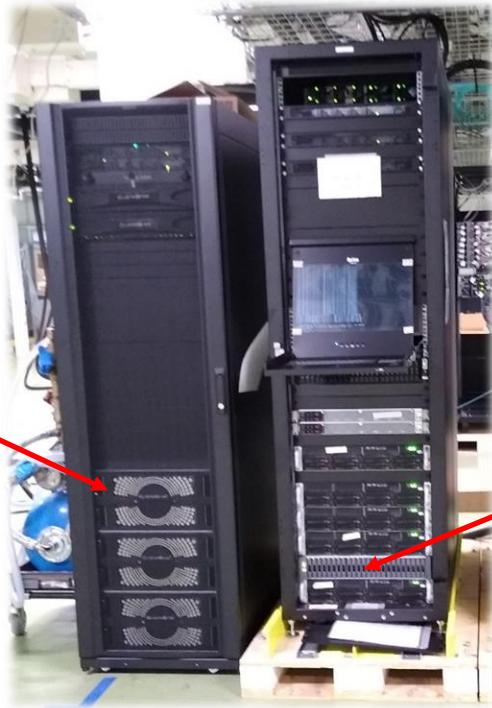
Bull sequana X1120 blade
(Skylake)



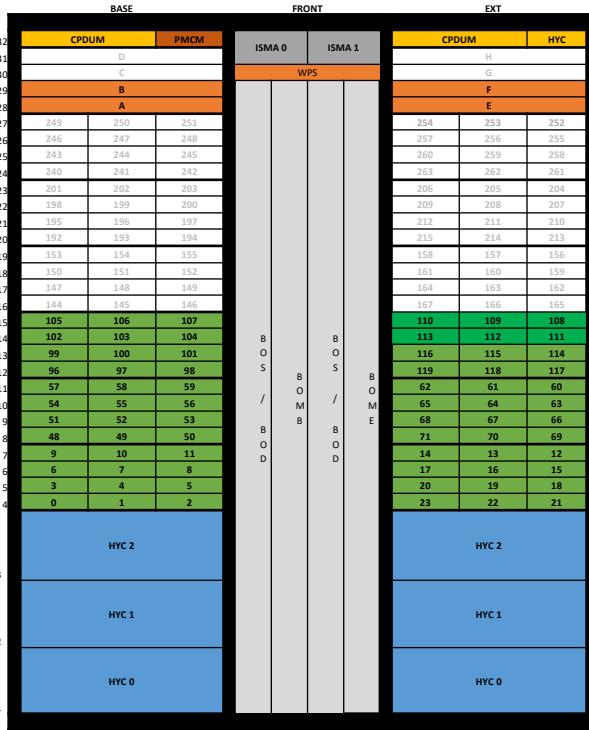
Service et spécifique



Storage



Spécifique Sequana

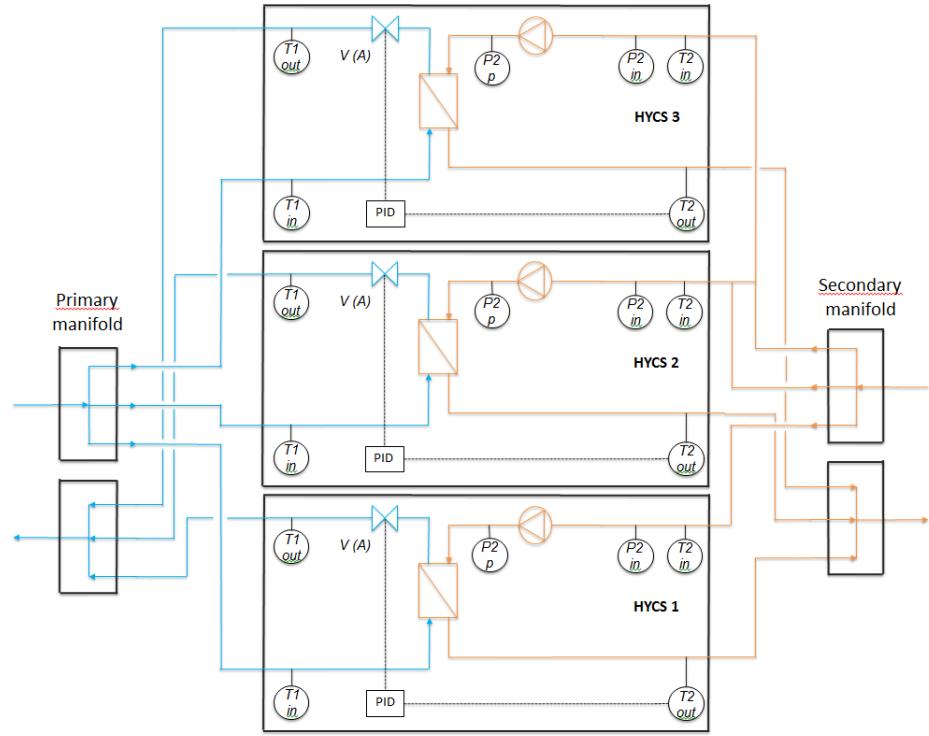
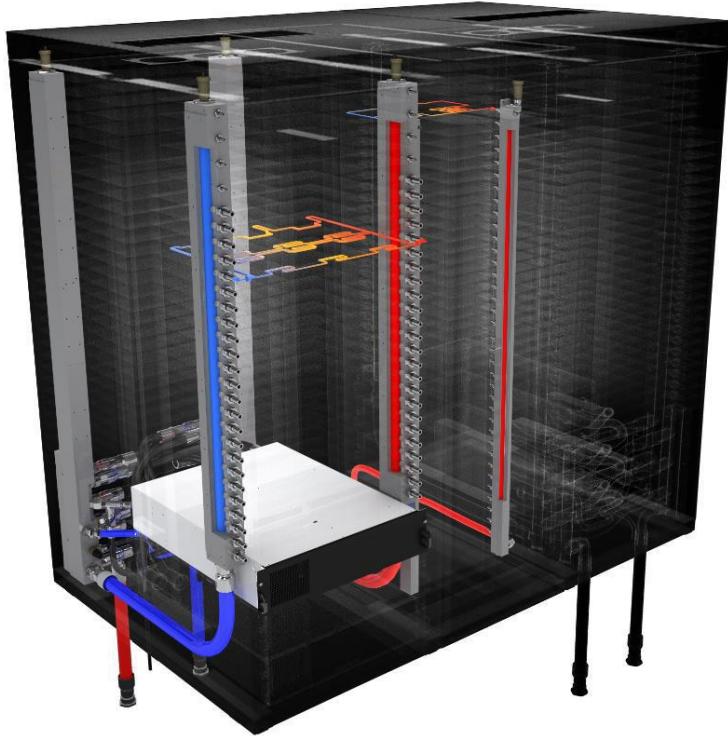


CPD	Circuit breaker
CPG	Compute power shelf
SKL	SKL nodes
263	Dummy Blades
BMC	KNL nodes
GPU	GPU nodes
HYC	Hydraulic chassis
BOD / BOS	BOD / BOS
WMC	L2 Switch
EMC	L1 Switch
TMC	Leaf switch
PMC	Top switch
	Power management controller

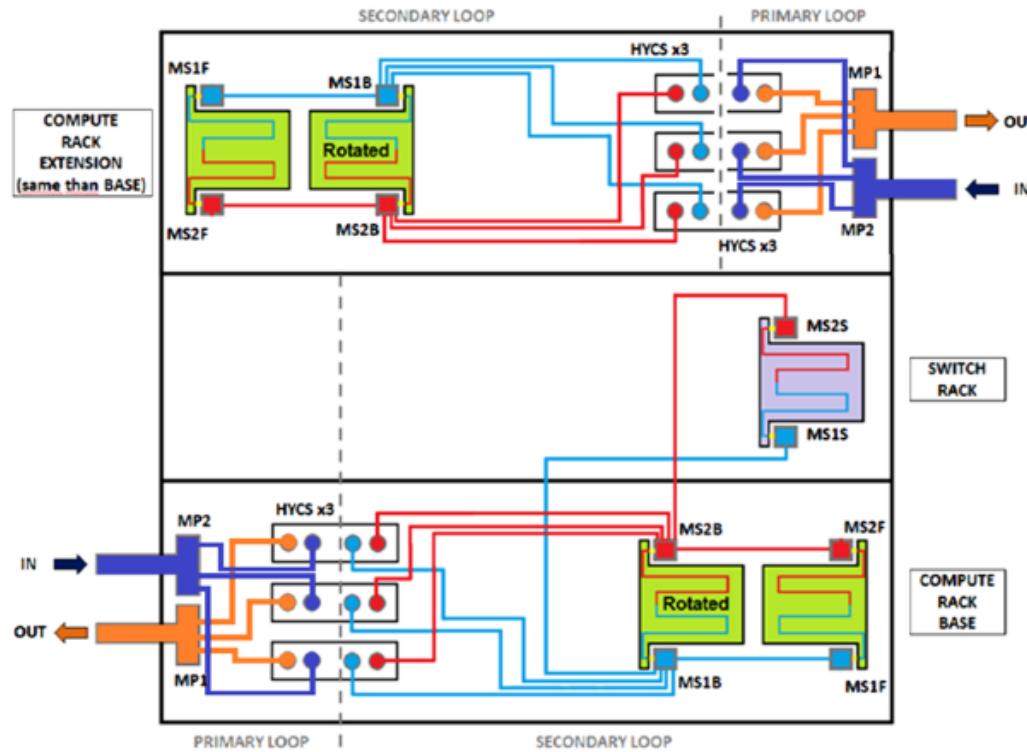
2

Sequana

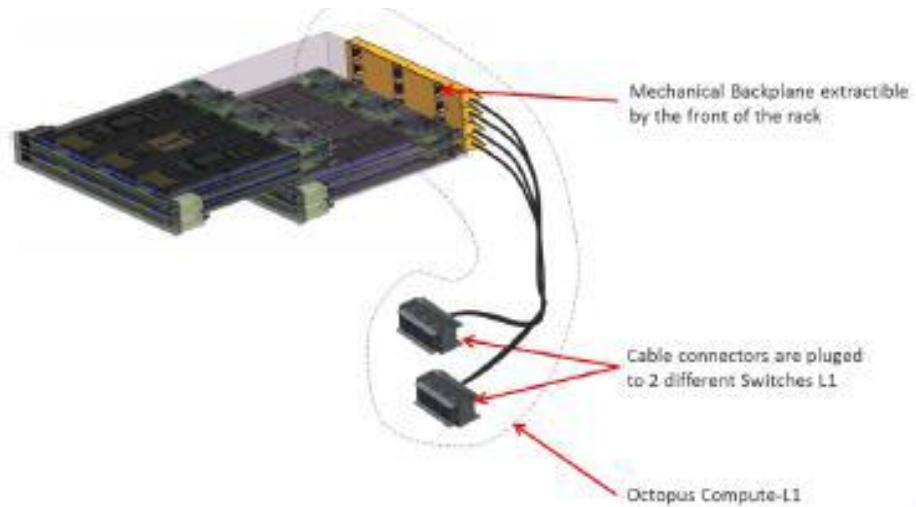
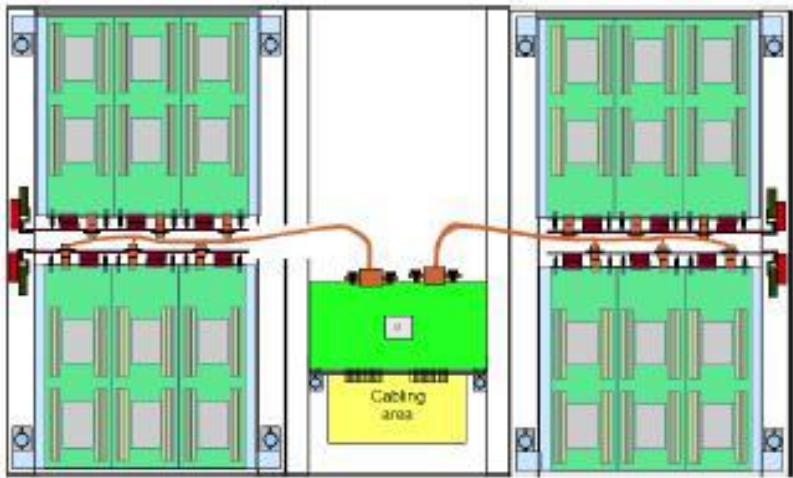
Cooling



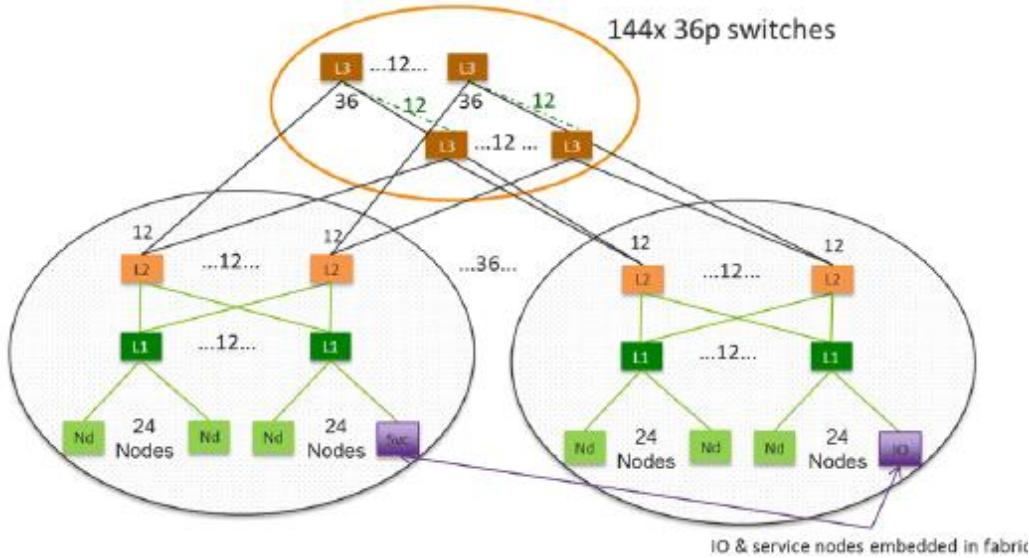
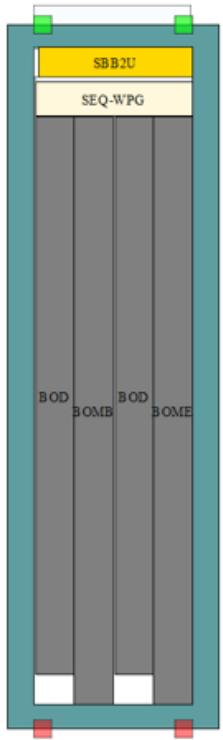
Cooling



Connections des blades (SOS)



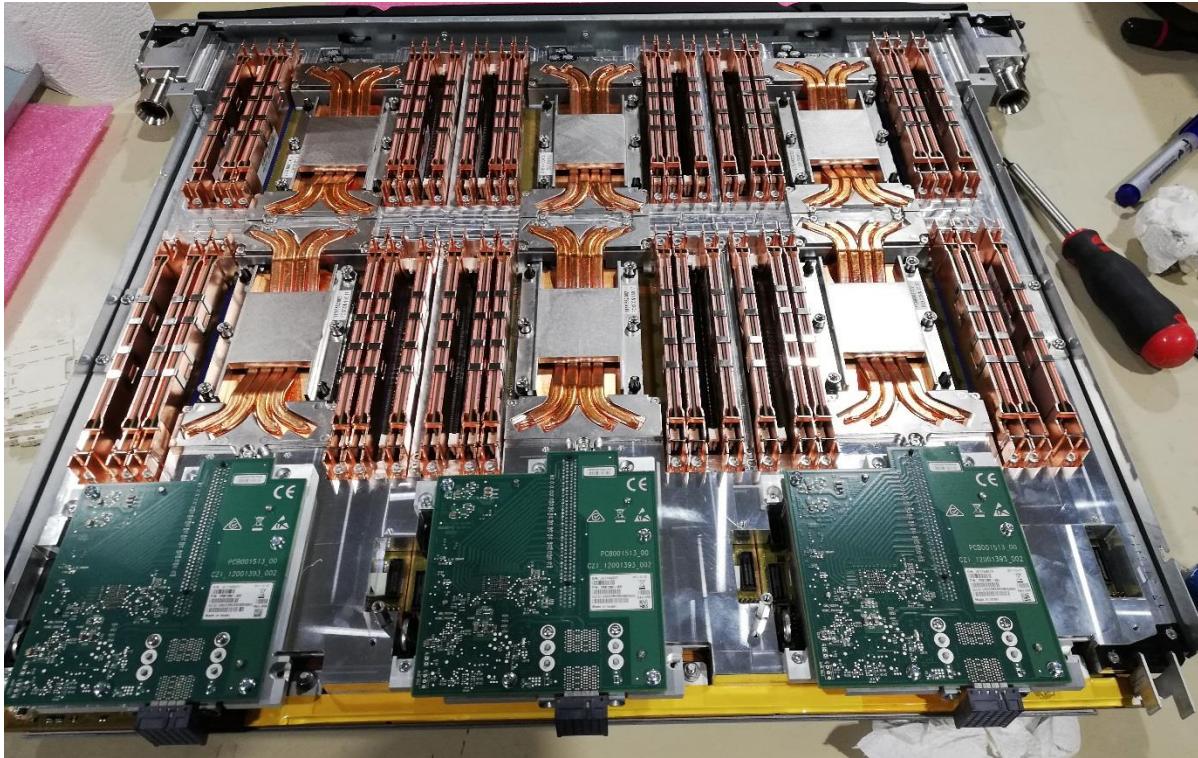
Connections internes BOD/BOS/BOMB



Connections internes BOD/BOS/BOMB



Blade CSL



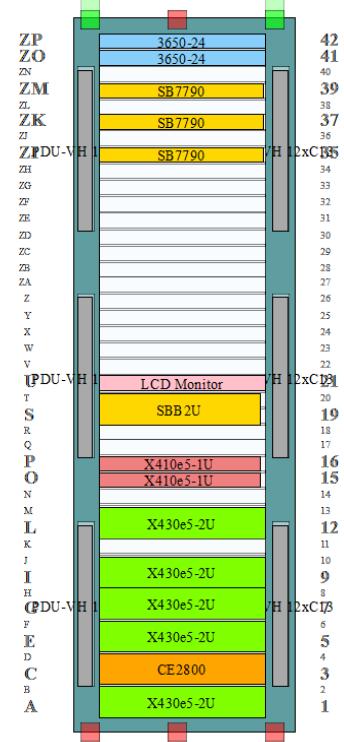
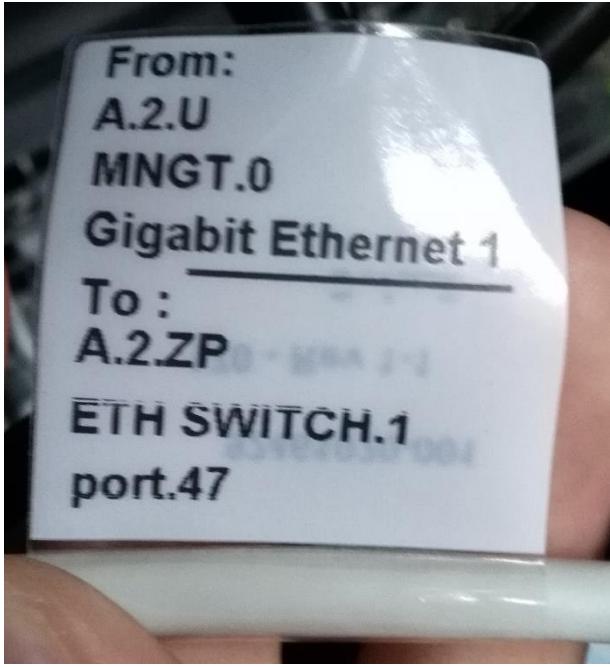
Approfondissement par sujets

Diapo. externe

3

Câblage (Netlist)

Etiquettes



Copyright © ATOS SAS – 2017

This software and the information contained here in are confidential to ATOS SAS. and are made available only to ATOS SAS and its affiliates employees , including BULL SAS, for the sole purpose of conducting ATOS's business.

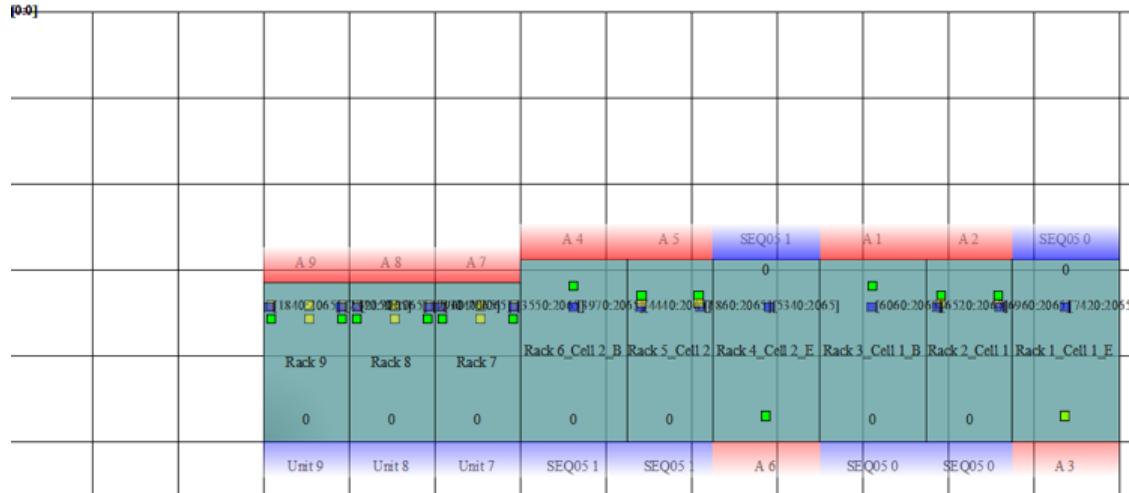
PATRIE - SENEGAL - Net Liste Physique Rev 1-1

Gen-Wire V1.2.1.4

Plan de salle

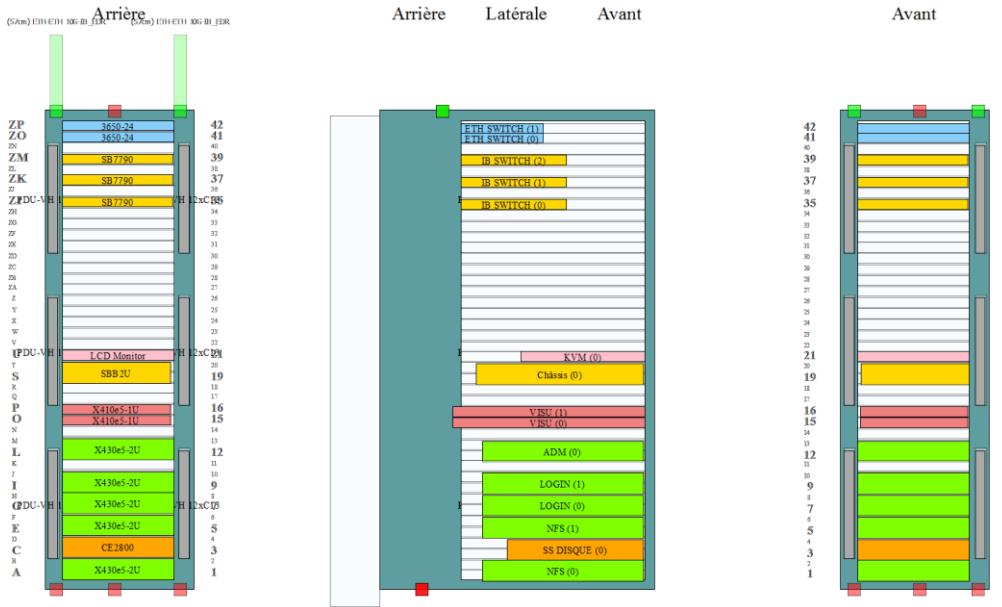
PATRIE - SENEGAL : Rev 1-1

Nombre d'armoire : 9



Racking

PATRIE - SENEGAL (Rev 1-1) Rack 8 (19" 42U AO) Qté = 1



Poids total = 424.35 kg - Ampérage total = 45.357 A - Puissance totale = 10.226kW

liste des connections

Unité départ	Instance Unité départ	Cellule départ	Type Baie départ	Tiroir départ	Instance tiroir départ	Modele départ	Etage départ	Slot départ	Instance slot départ	Port départ	Instanc e port départ	Hard Loc départ	Unité arrivée	Instanc e Unité arrivée	Cellule arrivée	Type Baie arrivée	Tiroir arrivée	Instance Tiroir arrivée	Modele arrivée	Etage arrivée	Slot arrivé e	Instance slot arrivée	Port arrivée	Instanc e Port arrivée	Hard Loc arrivée
SEQ05	1	5	Rack 4_Cell 2_E	HYC-SEQ	0	HMC	FoMrS1	1	0	ETHIG	0	Port.1	SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	16	LeftPort.20PMC
SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	16	Port.1	SEQ05	1	5	Rack 4_Cell 2_E	HYC-SEQ	0	HMC	FoMrS2	1	0	ETHIG	0	Port.1
SEQ05	1	5	Rack 4_Cell 2_E	HYC-SEQ	1	HMC	FoMrS2	1	0	ETHIG	0	Port.1	SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	17	LeftPort.20PMC
SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	17	LeftPort.20PMC	SEQ05	1	5	Rack 4_Cell 2_E	HYC-SEQ	1	HMC	FoMrS2	1	0	ETHIG	0	Port.1
SEQ05	1	6	Rack 4_Cell 2_E	PMC	0	PMC	ReLrS2	2	0	ETHIG	0	5U-Left/Port.1	SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	19	5U-Left/Port.1
SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	19	LeftPort.20PMC	SEQ05	1	6	Rack 4_Cell 2_E	PMC	0	PMC	ReLrS2	2	0	ETHIG	0	5U-Left/Port.1
SEQ05	1	5	Rack 4_Cell 2_E	HYC-SEQ	2	HMC	FoMrS3	1	0	ETHIG	0	Port.1	SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	18	LeftPort.20PMC
SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	18	LeftPort.20PMC	SEQ05	1	5	Rack 4_Cell 2_E	HYC-SEQ	2	HMC	FoMrS3	1	0	ETHIG	0	Port.1
SEQ05	0	6	Rack 1_Cell 1_E	PMC	0	PMC	ReLrS2	2	0	ETHIG	0	5U-Left/Port.1	SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	19	LeftPort.20PMC
SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	19	LeftPort.20PMC	SEQ05	0	6	Rack 1_Cell 1_E	PMC	0	PMC	ReLrS2	2	0	ETHIG	0	5U-Left/Port.1
SEQ05	1	1	Rack 6_Cell 2_B	PMC	0	PMC	ReLrS2	2	0	ETHIG	0	5U-Left/Port.1	SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	0	BCM-53457-T	FoMrS2	1	0	ETHIG	19	RightPort.20PMC
SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	19	RightPort.20PMC	SEQ05	1	1	Rack 6_Cell 2_B	PMC	0	PMC	ReLrS2	2	0	ETHIG	0	5U-Left/Port.1
SEQ05	0	1	Rack 3_Cell 1_B	PMC	0	PMC	ReLrS2	2	0	ETHIG	0	5U-Left/Port.1	SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	19	RightPort.20PMC
SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	19	RightPort.20PMC	SEQ05	0	1	Rack 3_Cell 1_B	PMC	0	PMC	ReLrS2	2	0	ETHIG	0	5U-Left/Port.1
SEQ05	1	3	Rack 5_Cell 2	PMC	0	PMC	FoMrS4C	1	0	ETHIG	0	PMCM/Port.1	SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	20	RightPMCM/Port.1
SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	20	RightPMCM/Port.1	SEQ05	1	3	Rack 5_Cell 2	PMC	0	PMC	FoMrS4C	1	0	ETHIG	0	PMCM/Port.1
SEQ05	0	2	Rack 3_Cell 1_B	HYC-SEQ	0	HMC	FoRrS1	1	0	ETHIG	0	Port.1	SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	16	RightPort.20PMC
SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	16	RightPort.20PMC	SEQ05	0	2	Rack 3_Cell 1_B	HYC-SEQ	0	HMC	FoRrS1	1	0	ETHIG	0	Port.1
SEQ05	0	3	Rack 2_Cell 1	ISMA	0	NSR423e4m	FoMrS41	1	2	ETHIG0	0	RightPort.20PMC	SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG0	26	RightPort.20PMC
SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG0	26	RightPort.20PMC	SEQ05	0	3	Rack 2_Cell 1	ISMA	0	NSR423e4m	FoMrS41	1	2	ETHIG0	0	RightPort.20PMC
SEQ05	1	3	Rack 5_Cell 2	ISMA	0	NSR423e4m	FoMrS41	1	2	ETHIG0	0	RightPort.20PMC	SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG0	26	RightPort.20PMC
SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG0	26	RightPort.20PMC	SEQ05	1	3	Rack 5_Cell 2	ISMA	0	NSR423e4m	FoMrS41	1	2	ETHIG0	0	RightPort.20PMC
SEQ05	0	2	Rack 3_Cell 1_B	HYC-SEQ	1	HMC	FoRrS2	1	0	ETHIG	0	Port.1	SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	17	RightPort.20PMC
SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	17	RightPort.20PMC	SEQ05	0	2	Rack 3_Cell 1_B	HYC-SEQ	1	HMC	FoRrS2	1	0	ETHIG	0	Port.1
SEQ05	0	3	Rack 2_Cell 1	ISMA	0	NSR423e4m	FoMrS41	1	2	ETHIG0	1	RightPort.20PMC	SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	1	0	ETHIG0	26	RightPort.20PMC
SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG0	26	RightPort.20PMC	SEQ05	0	3	Rack 2_Cell 1	ISMA	0	NSR423e4m	FoMrS41	1	2	ETHIG0	1	RightPort.20PMC
SEQ05	1	3	Rack 5_Cell 2	ISMA	0	NSR423e4m	FoMrS41	1	2	ETHIG0	1	RightPort.20PMC	SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG0	26	RightPort.20PMC
SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG0	26	RightPort.20PMC	SEQ05	1	3	Rack 5_Cell 2	ISMA	0	NSR423e4m	FoMrS41	1	2	ETHIG0	1	RightPort.20PMC
SEQ05	0	2	Rack 3_Cell 1_B	HYC-SEQ	2	HMC	FoRrS3	1	0	ETHIG	0	Port.1	SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	18	RightPort.20PMC
SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG	18	RightPort.20PMC	SEQ05	0	2	Rack 3_Cell 1_B	HYC-SEQ	2	HMC	FoRrS3	1	0	ETHIG	0	Port.1
SEQ05	0	3	Rack 2_Cell 1	ISMA	1	NSR423e4m	FoMrS41	2	2	ETHIG0	0	RightPort.20PMC	SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG0	27	RightPort.20PMC
SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG0	27	RightPort.20PMC	SEQ05	0	3	Rack 2_Cell 1	ISMA	1	NSR423e4m	FoMrS41	2	2	ETHIG0	0	RightPort.20PMC
SEQ05	1	3	Rack 5_Cell 2	ISMA	1	NSR423e4m	FoMrS41	2	2	ETHIG0	0	RightPort.20PMC	SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG0	27	RightPort.20PMC
SEQ05	1	4	Rack 5_Cell 2	ETH SWITCH	0	BCM-53457-T	FoMrS1	2	0	ETHIG0	27	RightPort.20PMC	SEQ05	1	3	Rack 5_Cell 2	ISMA	1	NSR423e4m	FoMrS41	2	2	ETHIG0	0	RightPort.20PMC
SEQ05	0	5	Rack 1_Cell 1_E	HYC-SEQ	0	HMC	FoRrS1	1	0	ETHIG	0	Port.1	SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	16	LeftPort.20PMC
SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG	16	LeftPort.20PMC	SEQ05	0	5	Rack 1_Cell 1_E	HYC-SEQ	0	HMC	FoRrS1	1	0	ETHIG	0	Port.1
SEQ05	0	3	Rack 2_Cell 1	ISMA	1	NSR423e4m	FoMrS41	2	2	ETHIG0	1	LeftPort.20PMC	SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG0	27	LeftPort.20PMC
SEQ05	0	4	Rack 2_Cell 1	ETH SWITCH	1	BCM-53457-T	FoMrS1	1	0	ETHIG0	27	LeftPort.20PMC	SEQ05	0	3	Rack 2_Cell 1	ISMA	1	NSR423e4m	FoMrS41	2	2	ETHIG0	1	LeftPort.20PMC

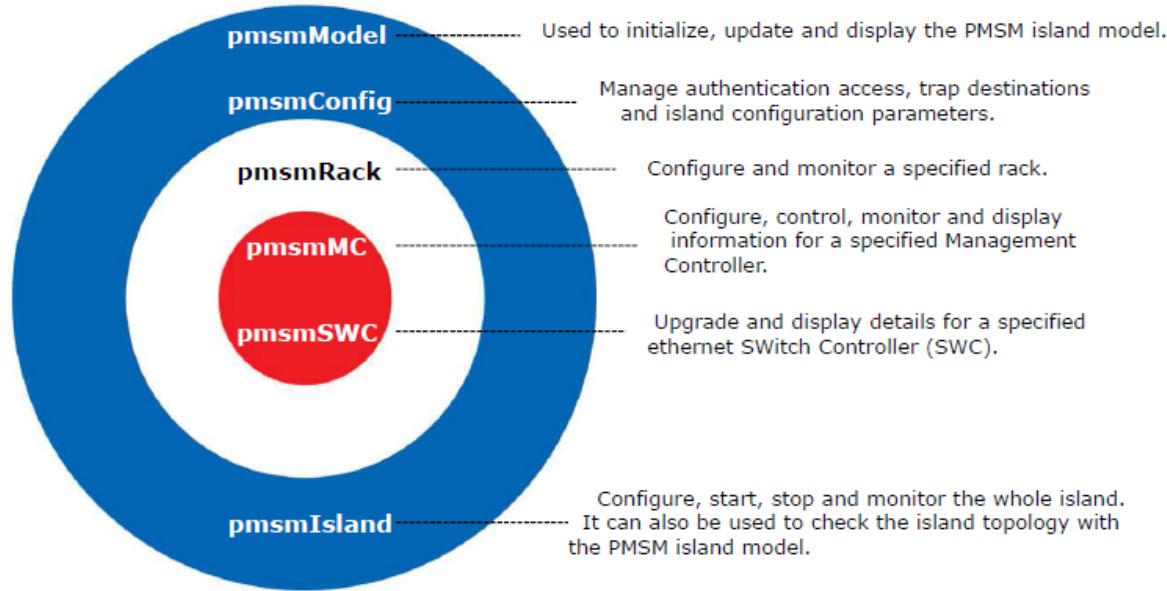
4

PMSM

Principle

PMSM pmsm<target>.py <action> <option(s)>

Few commands, some actions and many options for different target areas



Names

MCs / Associated Modules		Name	Details
HMC	HMC	pm-hmc<HMCnb>	HM C nb = <0..5> base: <0..2> (from bottom to top) extension: <3..5> (from bottom to top)
	hydraulic chassis	hyc<HMCnb>	
WMC	WMC	pm-wmc1<0..23>	L1 switches (from bottom to top) even number: L1 switches with Ethernet odd number: L1 switches without Ethernet
	Ethernet switches	pm-esw1<0..23>	
	WMC	pm-wmc2<0..23>	L2 switches (from bottom to top) even number: right board odd number: left board
	Ethernet switches	pm-esw2<0..23>	
BMC	BMC	pm-bmc<instanceNb>	instanceNb = <000..287> = (group nb - 4)*24 + (port nb - 1)
	Compute node	nod<instanceNb>	

Approfondissement

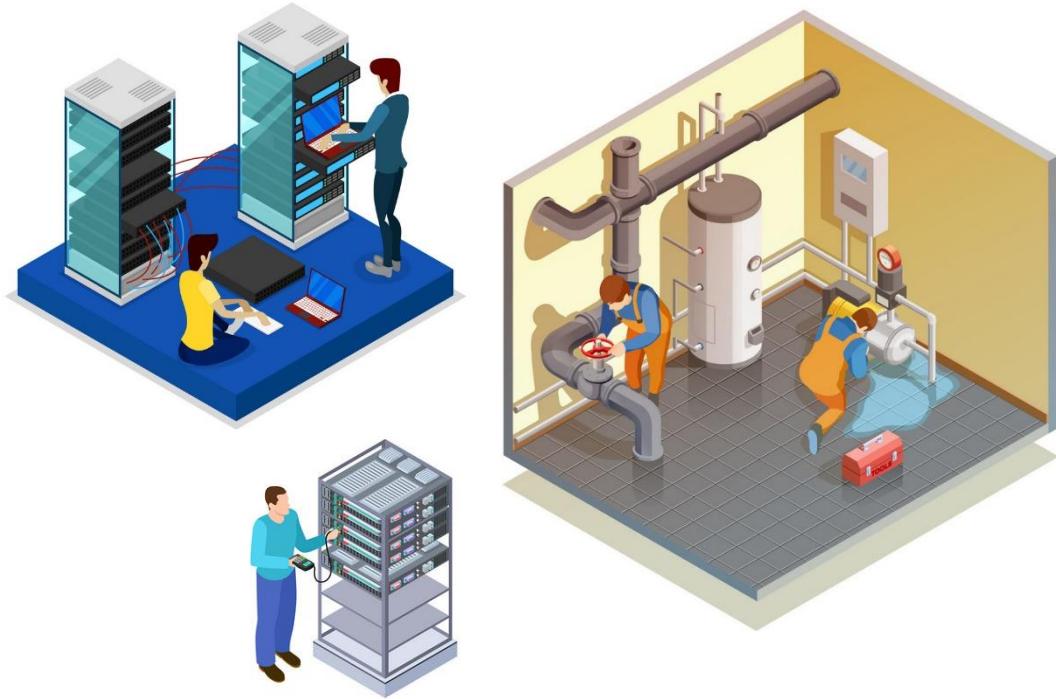
Diapo. externe

5

Supervision et surveillance

Surveillance Visuelle

- ▶ Température
- ▶ LED
- ▶ Fuites, glycol, eau
- ▶ Kvm
- ▶ Tableau électrique



Supervision Infra

- ▶ <http://41.214.117.148:3000/usr/viewon/Accueil.shtm>
- ▶ Supervision de l'intégralité de l'infrastructure
- ▶ Refroidissement et électricité inclue



Outils de surveillance logiciel

- ▶ Slurm
- ▶ Clash (ssh)
- ▶ Shinken
- ▶ IB check
- ▶ Ipmitool
- ▶ PMSM*

*Sequana uniquement

Slurm

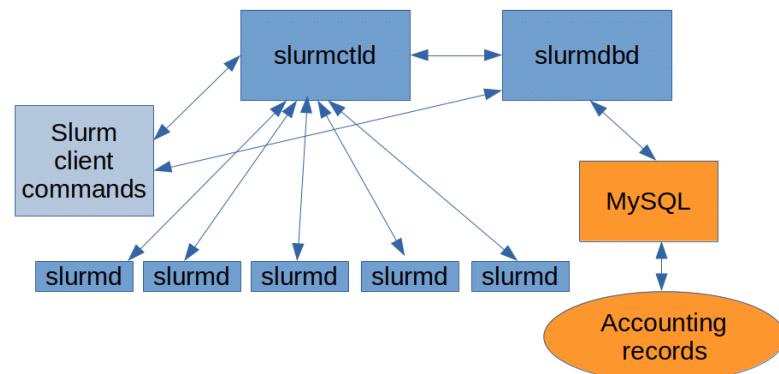


- ▶ Production
- ▶ Affectation
- ▶ Out of prod
- ▶ maintenance

```
[elhuiz@cd12:/scratch/tmp/zzy]$ sinfo
PARTITION    AVAIL  JOB_SIZE TIMELIMIT   CPUS  S:C:T  NODES STATE
workq*      up     1-infini 1:00:00:00   64 2:16:2    512 completing
workq*      up     1-infini 1:00:00:00   64 2:16:2   1452 reserved
workq*      up     1-infini 1:00:00:00   64 2:16:2   2615 allocated
workq*      up     1-infini 1:00:00:00   64 2:16:2   1595 idle
72hours      up     1          3:00:00:00   64 2:16:2    512 completing
72hours      up     1          3:00:00:00   64 2:16:2   1452 reserved
72hours      up     1          3:00:00:00   64 2:16:2   2615 allocated
72hours      up     1          3:00:00:00   64 2:16:2   1595 idle
```

```
darkvixen102:~ # scontrol update NodeName=node4 State=DRAIN Reason="Maintenance"
darkvixen102:~ # sinfo -Nel
Sun Jul 15 11:54:01 2018
NODELIST  NODES PARTITION      STATE CPUS  S:C:T MEMORY TMP_DISK WEIGHT AVAIL_FE REASON
node1      1 normal_q*        idle    4  1:4:1    950      0     1  (null) none
node2      1 normal_q*        idle    4  1:4:1    950      0     1  (null) none
node3      1 normal_q*        idle    4  1:4:1    950      0     1  (null) none
node4      1 normal_q*        drained 4  1:4:1    950      0     1  (null) "Maintenance"

darkvixen102:~ # scontrol update NodeName=node4 State=RESUME
darkvixen102:~ # sinfo -Nel
Sun Jul 15 11:54:29 2018
NODELIST  NODES PARTITION      STATE CPUS  S:C:T MEMORY TMP_DISK WEIGHT AVAIL_FE REASON
node1      1 normal_q*        idle    4  1:4:1    950      0     1  (null) none
node2      1 normal_q*        idle    4  1:4:1    950      0     1  (null) none
node3      1 normal_q*        idle    4  1:4:1    950      0     1  (null) none
node4      1 normal_q*        idle    4  1:4:1    950      0     1  (null) none
```



Clush

- ▶ Check
- ▶ Test
- ▶ Burn

```
[root@pm-mgt0 ~]# clush -bw pm0-nod[00-93] "ibstat |grep -i rate"
```

```
-----  
Pm0-nod[90,93] (2)  
-----  
    Rate: 100  
    Rate: 100  
    Rate: 100  
    Rate: 100
```

```
[root@pm-mgt0 ~]# clush -bw pm0-nod[00-93] "echo ok"
```

```
-----  
Pm0-nod[90,93] (2)  
-----  
ok
```

Monitoring (Shinken)

- ▶ Shinken + webui
- ▶ Grafana*
- ▶ Mail*

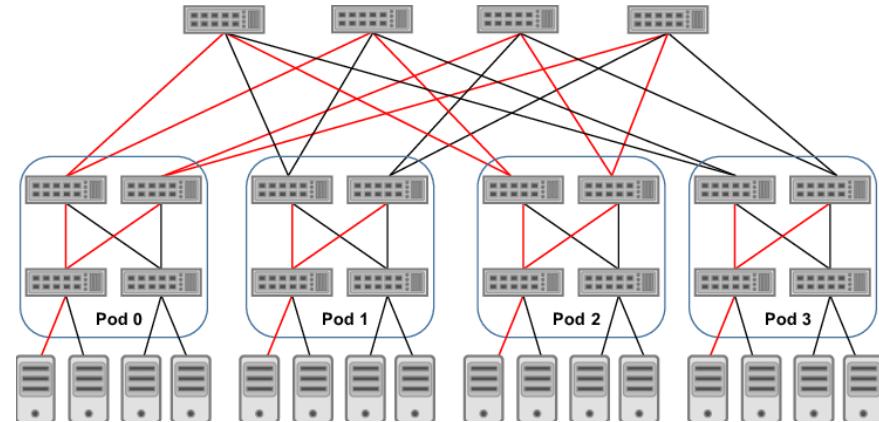
The screenshot shows the Shinken web interface with the following details:

- Business impact: Normal**
- Your bookmarks:**
 - Survey
 - Nd-services
- No common bookmarks**
- Hosts and Services Status:**
 - RDS-ASA: CPU OK, Memory OK, NetworkUsage OK.
 - RDS-SHINKEN: Cpu OK, Disks OK, Load OK, Memory OK, NetworkUsage OK.
 - RDS-SYNOLOGY: Cpu OK, Disks OK, Dns OK, Memory OK, NetworkUsage OK.
 - RDS-VMwareESX: Cpu OK, Memory OK, NetworkUsage OK.
 - CPU: OK, Memory OK.
 - Net: OK.
 - SUR-INTERNET...: OK.
 - ServiceSample: OK.
- Host Details:**
 - RDS-ASA: 12m OK - cpu Chessie usage [5 min avg] is 0.00%, cpu Processor 0/0 usage (5 min avg) is 0.00%, cpu Processor 37s 1m 1s OK - environmental hardware working fine.
 - RDS-SHINKEN: 13m 1s OK - interface Adaptive Security Appliance 'GigabitEthernet0/5' 19s OK - memory usage to int 0.00% is 0.00%
 - RDS-SYNOLOGY: 13m 1s OK - memory usage to int 30.72% - mempool (29.96%) 19s MEMPOOL DMA usage is 77.89%, mempool MEMPOOL_GLD 13m 1s PING OK - Packet loss = 0%, RTA = 0.02 ms 12m 1s 0.017ms
 - CPU: 12m 1 CPU, load 28.0% < 80% : OK 11s 1m 1s OK : (-90%) All selected storages 1m 1s Load : 0.54-0.48-0.35 : OK 0.48 19s Ram : 45%, Swap : 0% ; OK 13m 1s 0.49098s 13m 1s CPU OK, 1.023Mbps (0%) - In: 1.023 (0%) Out: 0.303 (0%) 12m 1s Line-rate: 1000Mbps 24s 13m 1s PING OK - Packet loss = 0%, RTA = 1.07 ms 1.072ms 12m 1s 4 CPU, average load 37.8% < 80% : OK 37.75s 12m 1s OK : (-90%) All selected storages 59s 12m 1s DNS OK, 0.024 seconds response time, rd-services.be returns 213.198.33.87 0.024175s 34s 12m 1s Ram : 16%, Swap : 7% ; OK 37s 13m 1s eth0 OK, 0.056Mbps (0%) - In: 0.056 (0%) Out: 0.000 (0%) 44s 12m 1s Line-rate: 100Mbps 38s 12m 1s PING OK - Packet loss = 0%, RTA = 0.47 ms 0.475ms 12m 1s CHECK_ESX3.PL OK - cpu usage=19.43 % 19.43s 69s 12m 1s CHECK_ESX3.PL - io commands aborted=0, io bus reset=0, io read latency=0 ms, write latency=0 ms, 12m 1s CHECK_ESX3.PL OK - mem usage=79.16 % 19.41s 35s 13m 9s CHECK_ESX3.PL OK - net receive=22.00 KBps, send=142.00 350.03ms 12m 1s Kbps, all 2 NICs are connected 44s 12m 1s PING OK - Packet loss = 0%, RTA = 102.23 ms 102.23ms 12m 1s 0.01230002ms 44s 12m 1s Ok: Sample check for the host mail.survey-management.be 53s

*disponible, non configuré

IB check

- ▶ Ibstat
- ▶ OpenSM
- ▶ Ibnetdiscover
- ▶ Ibswitches
- ▶ Ibqueryerrors
- ▶ Ibportstate
- ▶ Ibv_rc_pingpong



Sideband !

À désactiver pour la production ! Génère des symbol errors sur le reseau IB.

ssh wmc*

password: sdd@atos

Shutdown sideband

mmapapp -B -w 0xC0300000,1 0x00

Start sideband

mmapapp -B -w 0xC0300000,1 0x01

check sideband stat

mmapapp -B -r 0xc0300000,1

Sideband !

Activer:

```
for i in 00 02 04 06 08 10; do ssh pm1-wmc1$i 'mmapapp -B -w 0xC0300000,1 0x01'; done
```

```
for i in 00 02 04 06 08 10 12 14 16 18 20 22; do ssh pm1-wmc2$i 'mmapapp -B -w 0xC0300000,1 0x01'; done
```

Status:

```
for i in 00 02 04 06 08 10; do ssh pm1-wmc1$i 'mmapapp -B -r 0xC0300000,1'; done
```

```
for i in 00 02 04 06 08 10 12 14 16 18 20 22; do ssh pm1-wmc2$i 'mmapapp -B -r 0xC0300000,1'; done
```

Désactiver:

```
for i in 00 02 04 06 08 10; do ssh pm1-wmc1$i 'mmapapp -B -w 0xC0300000,1 0x00'; done
```

```
for i in 00 02 04 06 08 10 12 14 16 18 20 22; do ssh pm1-wmc2$i 'mmapapp -B -w 0xC0300000,1 0x00'; done
```

Nouveau switch:

```
ssh-copy-id pm1-wmc1$i -f
```

BMC web access

- ▶ Accès direct depuis le réseau
- ▶ Accès via Xauth

The image shows a BullSequana X series server system consisting of three black rack-mounted server units. The front panel of the central unit features the 'Atos' logo and 'BullSequana' branding. To the right of the hardware is a screenshot of a web browser displaying the 'Server Hardware Console'. The console has a blue header bar with the 'BullSequana X series' logo and the 'Atos' logo. In the top right corner of the console screen, there is text indicating 'Managed Server : (1 modules)', 'Platform Name : (1 modules)', and 'Connected on module : 0 (Master)'. Below this, the main interface is titled 'Server Hardware Console'. It includes a 'Username' input field, a 'Password' input field, and a 'Log On' button.

Ipmi tool

```
Ipmi tool -H $IP -U $user -P $password <option>
Socket interne: ipmitool <option>
```

Utilisateur : ADMIN
Password : ADMIN

Serial On Lan:

```
Ipmi tool -e \& sol activate
```

```
Ipmi tool -e \& sol deactivate
```

Rappel: &.

Logs:

```
Ipmi tool sel list
```

Power:

Ipmi tool chassis power status

Status/on/off/reset

Ipmitool

ipmitool lan print

ipmitool chassis identify

ipmitool sensor

ipmitool fru print

ipmitool user

ipmitool chassis bootdev

ipmitool chassis bootparam

...

Diapo. externe

6

Pannes et diagnostic

Principe

- ▶ Repérage de la panne, alerte
- ▶ Collecte d'information
- ▶ Analyse / diagnostique
- ▶ Manipulation
- ▶ Test
- ▶ Burn / Benchmark
- ▶ Production

Schéma

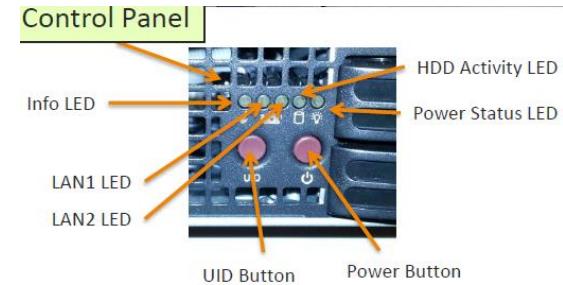
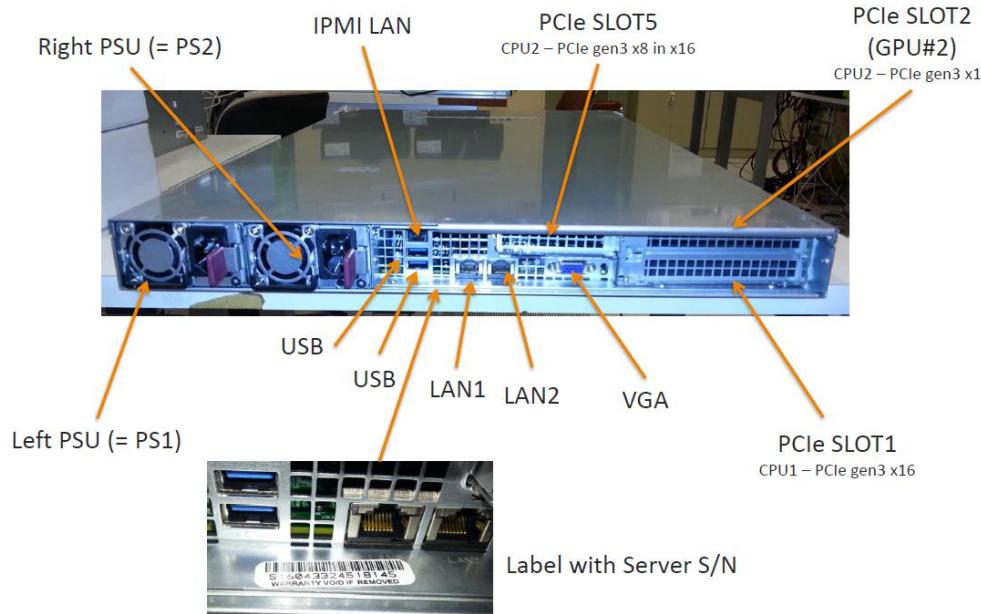
Schéma externes

Stress test (Firestarter)

```
package: stress
clush -bw <nodeset> "echo ok"
for i in $(nodeset -e pm1-nod[000-017,024-047,049-083,087-095,117-119]); do scp ./stress-1.0.4-16.el7.x86_64.rpm
$i:/root/; done
clush -bw pm1-nod[000-017,024-047,049-083,087-095,117-119] 'yum install ./stress-1.0.4-16.el7.x86_64.rpm -y'
clush -bw pm1-nod[000-017,024-047,049-083,087-095,117-119] 'cat /proc/cpuinfo | grep processor | wc -l'
clush -bw pm1-nod[000-017,024-047,049-083,087-095,117-119] 'stress --cpu 80 --timeout 43200'
clush -bw pm1-nod[000-017,024-047,049-083,087-095,117-119] 'ps -e |grep stress'
clush -bw pm1-nod[000-017,024-047,049-083,087-095,117-119] 'pkill stress'
```

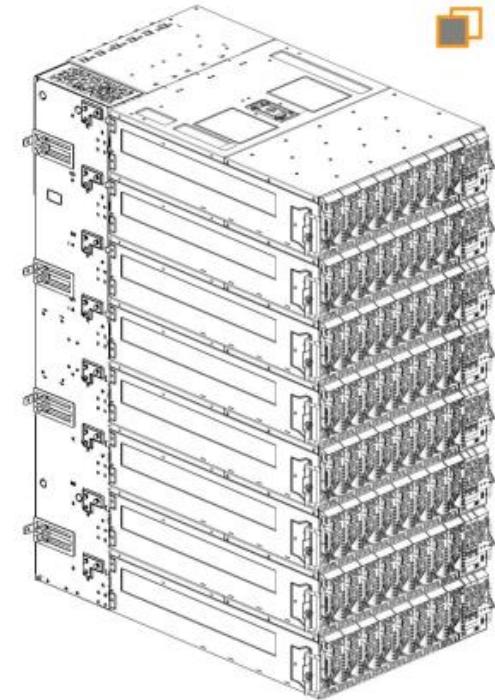
Bullx (SuperMicro)

► Serveur standard

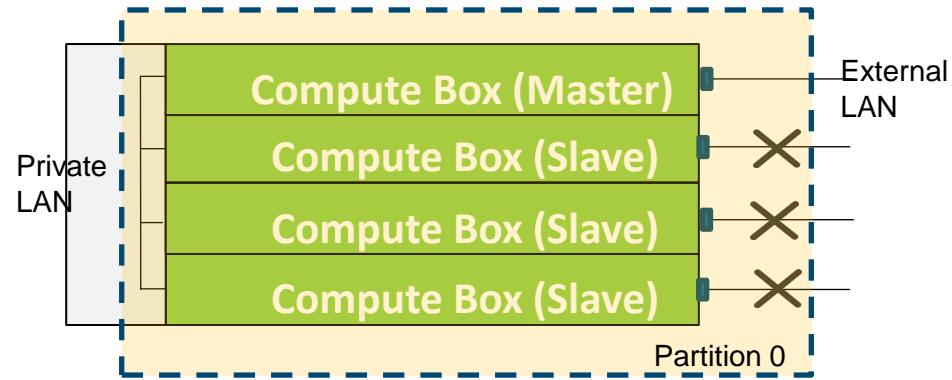


Mesca - QLM

- ▶ Serveur d'hyper-convergence
- ▶ Démarrage long
- ▶ QLM -> 1 modules (~3min)
- ▶ SMP -> 8 modules (~20min)



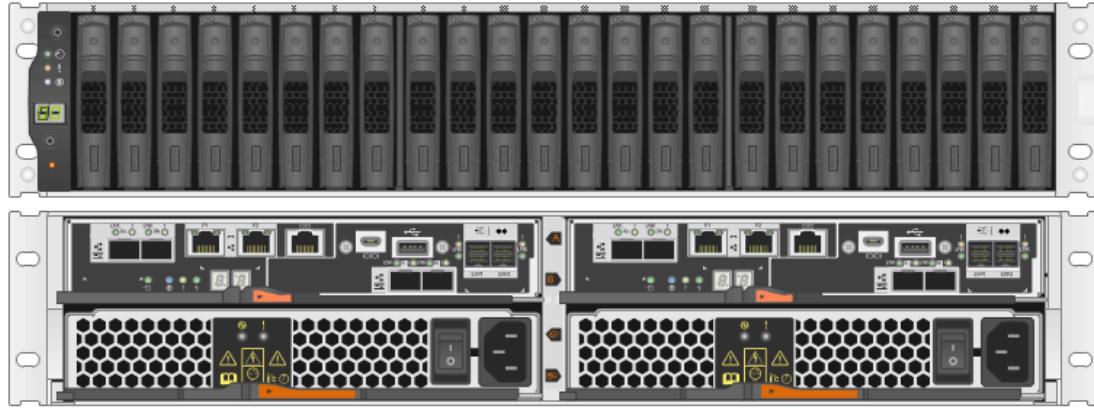
Mesca - QLM



Module id	0	1	2	3	... 15
telnet 24	40024	41024	42024	43024	... 55024
http 80	40080	41080	42080	43080	... 55080
https 443	40443	41443	42443	43443	... 55443
ipmi 623	40623	41623	42623	43623	... 55623

NFS (NetApp)

- ▶ 10To (12*900GB SAS)



ClusterStore

► 1,1 Po



ClusterStore

- ▶ serveurs de mngrt(scratch00 & 01)
- ▶ ssh user admin (3 essai avant bloquage !)
- ▶ sudo su

pm -q <nodeset> => status

pm -1 <nodeset> => on

pm -0 <nodeset> => off

/mnt/mnrgt/var/log/

#Monter le FS
cscli mount

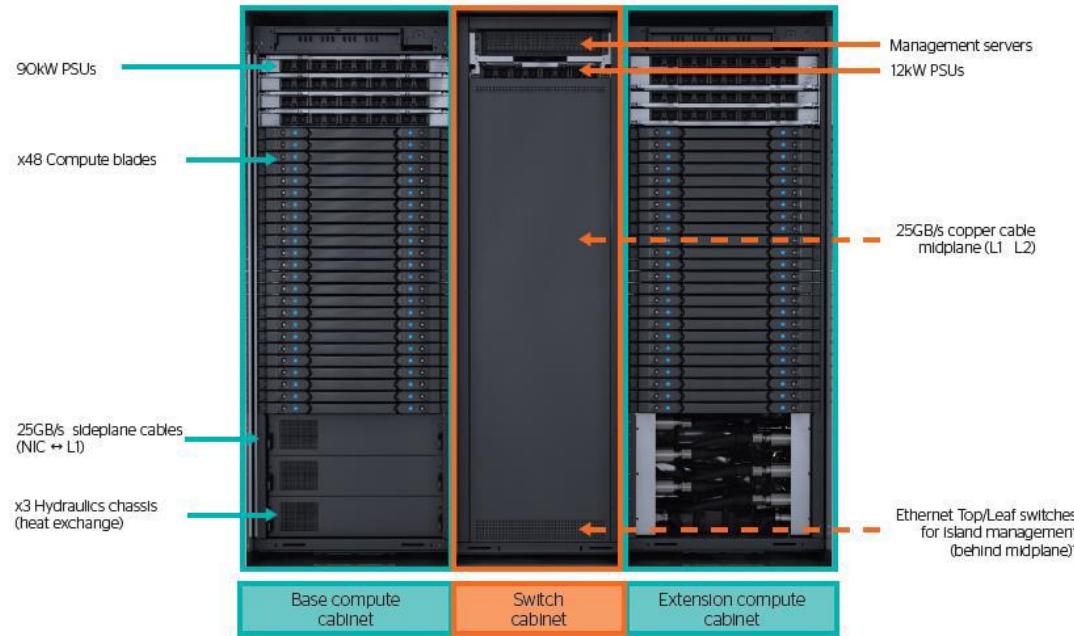
#Démonter le FS
cscli umount

#Afficher l'état du FS
cscli show_nodes

Sequana

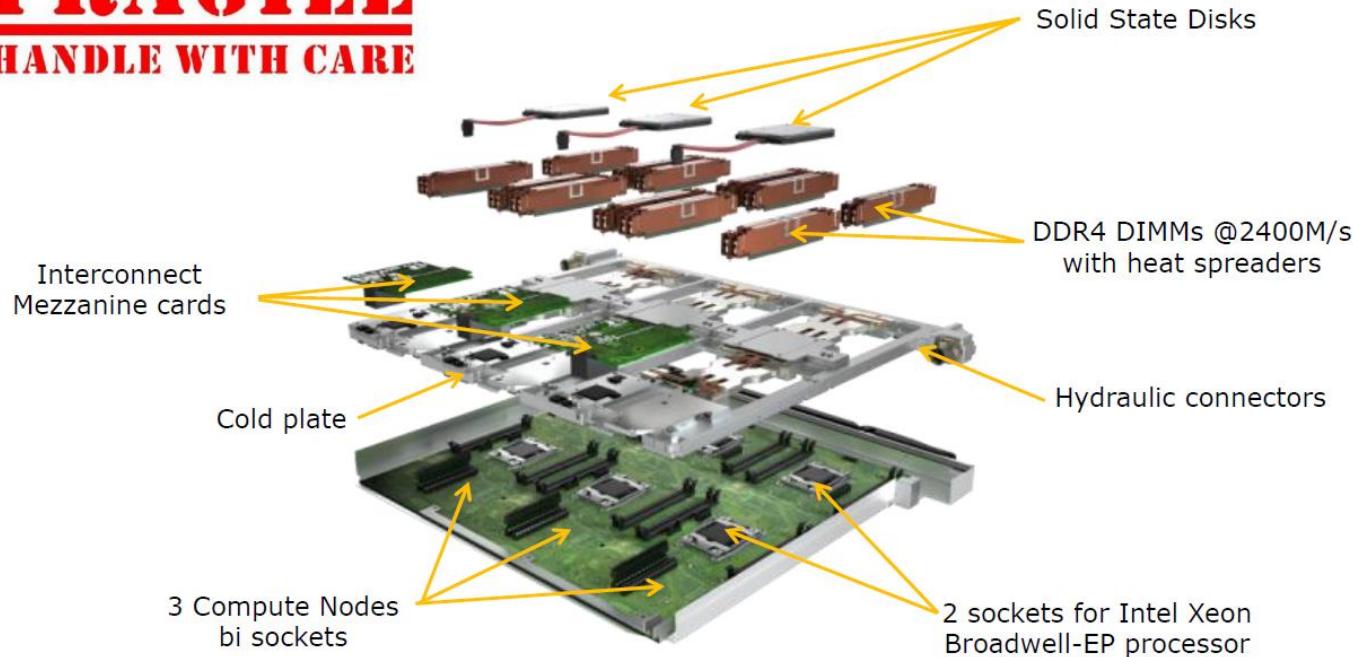
Rack

The sequana cell



Sequana Blades

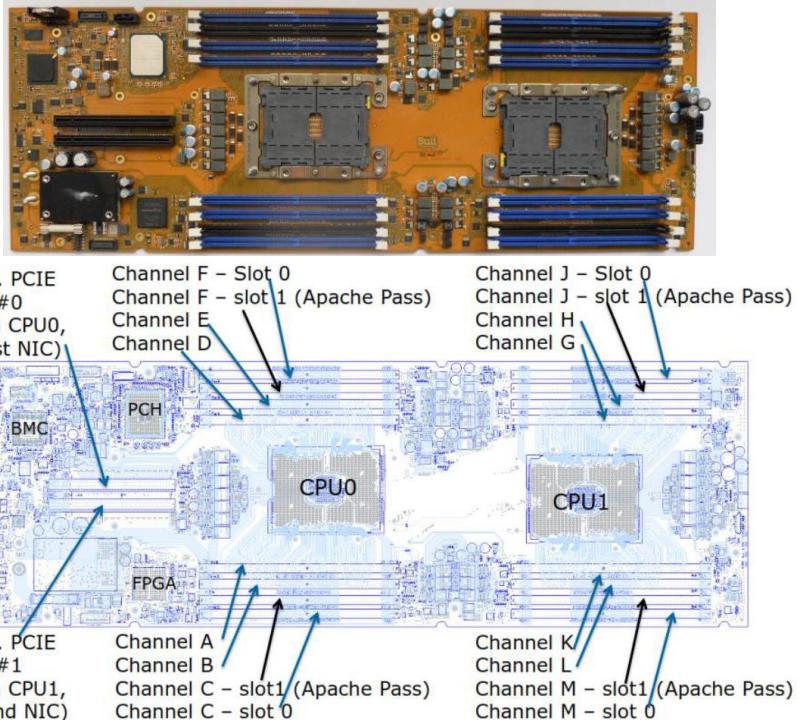
FRAGILE
HANDLE WITH CARE



Sequana

CSL

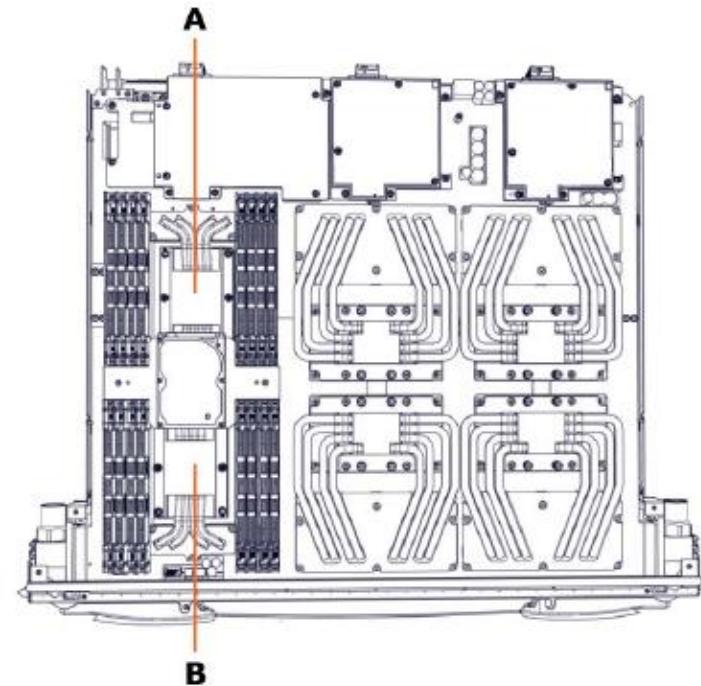
- ▶ 2 Xeon 6135 Skylake 20 cœurs
- ▶ 96GB - 12 * 8 GB DDR4
- ▶ 256GB SSD



Sequana

CGP-CSL

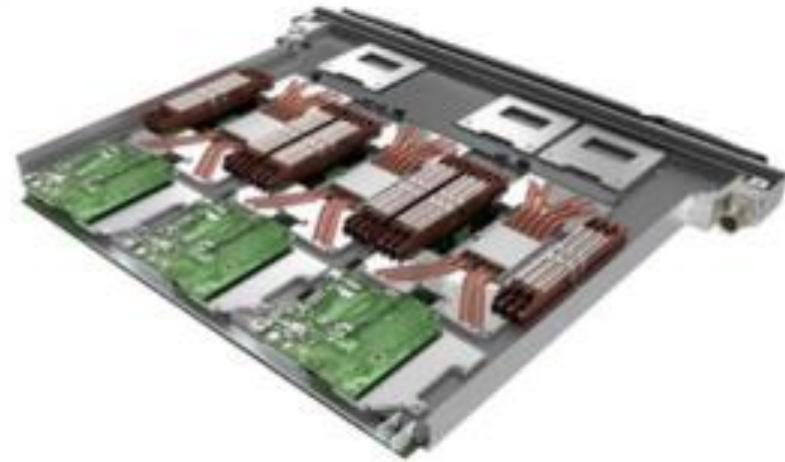
- ▶ 2 Xeon 6135 Skylake 20 cœurs
- ▶ 96GB - 12 * 8 GB DDR4
- ▶ 256GB SSD
- ▶ 4 Nvidia Pascal



Sequana

KNL

- ▶ 1 Xeon Phi KNL 64 cœurs
- ▶ 96GB - 12 * 8 GB DDR4
- ▶ 256GB SSD



Suivie

- Le suivie des manipulations et pannes est essentiel.

Rack	TYPE	NAME	état	description	Test suivant	serial number
Rack8	login	login0	en cours	impossible à power on, logs vide	unplug/replug électriquement	C8250FI01N80426
					Ouverture, unplug/plug ram & PCI	
					Reboot sans les cartes PCI	
SEQ2	compute	pm2-bmc075	en cours	"ABSENT" quand insérée	check connecteur lame	
SEQ2	compute	pm2-bmc002	OK	bmc sans ip	reset	
SEQ2	PSU	pm2-pmc0>pws00>psu2	OK	off au démarrage	reset > ok	
SEQ2	PSU	pm2-pmc2>pws21>psu2	OK	off	check connecteur + unplug/replug	
rack7	Bullion	smp1	en cours	problème de ventilateur (module 7 - FAN 4)	check du ventilateur	XAN-LX7-05442
			OK	problème de système, communication impossible	check du diskless	
SEQ1	compute	pm1-bmc023	KO	"ABSENT" quand insérée	check connecteur lame	
				SOS HS (vérifier en croisant les SOS pour confirmer)	Changement de position	
Rack8	nfs	nfs1	OK	freeze pour une raison inconnu, logs/messages vides	Ouverture, unplug/plug ram & PCI	
Rack8	nfs	nfs0	OK	freeze pour une raison inconnu, logs/messages vides	Ouverture, unplug/plug ram & PCI	
SEQ1	compute	pm1-bmc002	OK	bmc sans ip	reset MC	
				MC FATAL	check connecteur + unplug/replug	
SEQ1	compute	pm1-bmc004	OK	bmc sans ip	reset MC	
				MC FATAL	check connecteur + unplug/replug	
SEQ1	switch	pm1-wmc204	OK	interconnect off	power on it	
SEQ1	switch	pm1-wmc206	OK	interconnect off	power on it	

-
- ▶ Outil de ticket par niveau L1->L2->L3
 - ▶ Pour tous problèmes complexes
 - ▶ Pour toute commande de Glycol
 - ▶ Demande d'informations complète
 - Logs
 - FRU
 - Versions

Thanks

Pour plus d'informations, contactez:
Tom Sieg
tom.sieg@atos.net

Atos, the Atos logo, Atos Codex, Atos Consulting, Atos Worldgrid, Bull, Canopy, equensWorldline, Unify, Worldline and Zero Email are registered trademarks of the Atos group. March 2017. © 2017 Atos.
Confidential information owned by Atos, to be used by the recipient only. This document, or any part of it, may not be reproduced, copied, circulated and/or distributed nor quoted without prior written approval from Atos.

