



JPSRC

Expression of Interest



SRC | Net

SKAO Regional Centre Network

Takuya Akahori
Head of JPSRC

国立天文台SKA1サブプロジェクト
NAOJ SKA1 Promotion Group



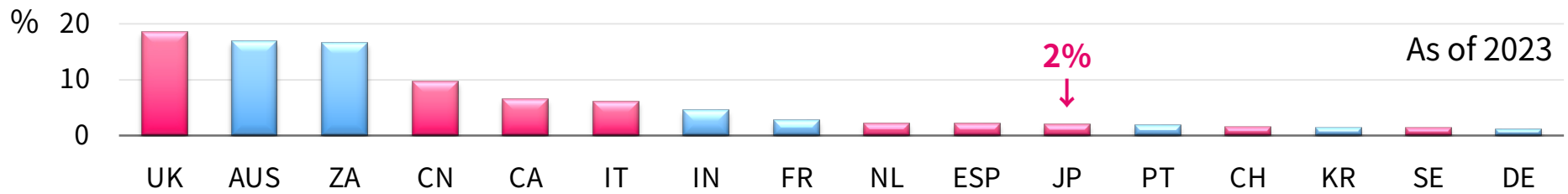
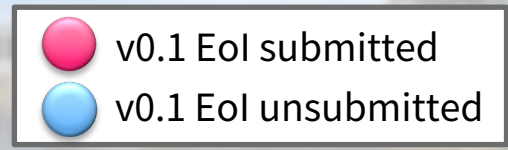
■ Open questions about v0.1

- Size
- Location
- System

■ Some details of JPSRC

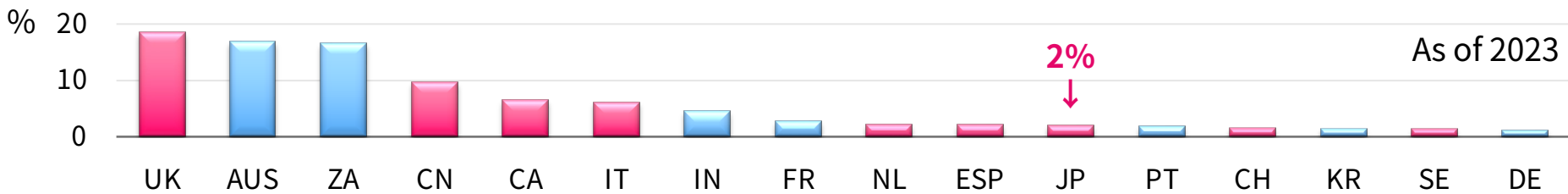
- Hardware
- Software
- Human resources

Size



Size

● v0.1 Eol submitted
● v0.1 Eol unsubmitted



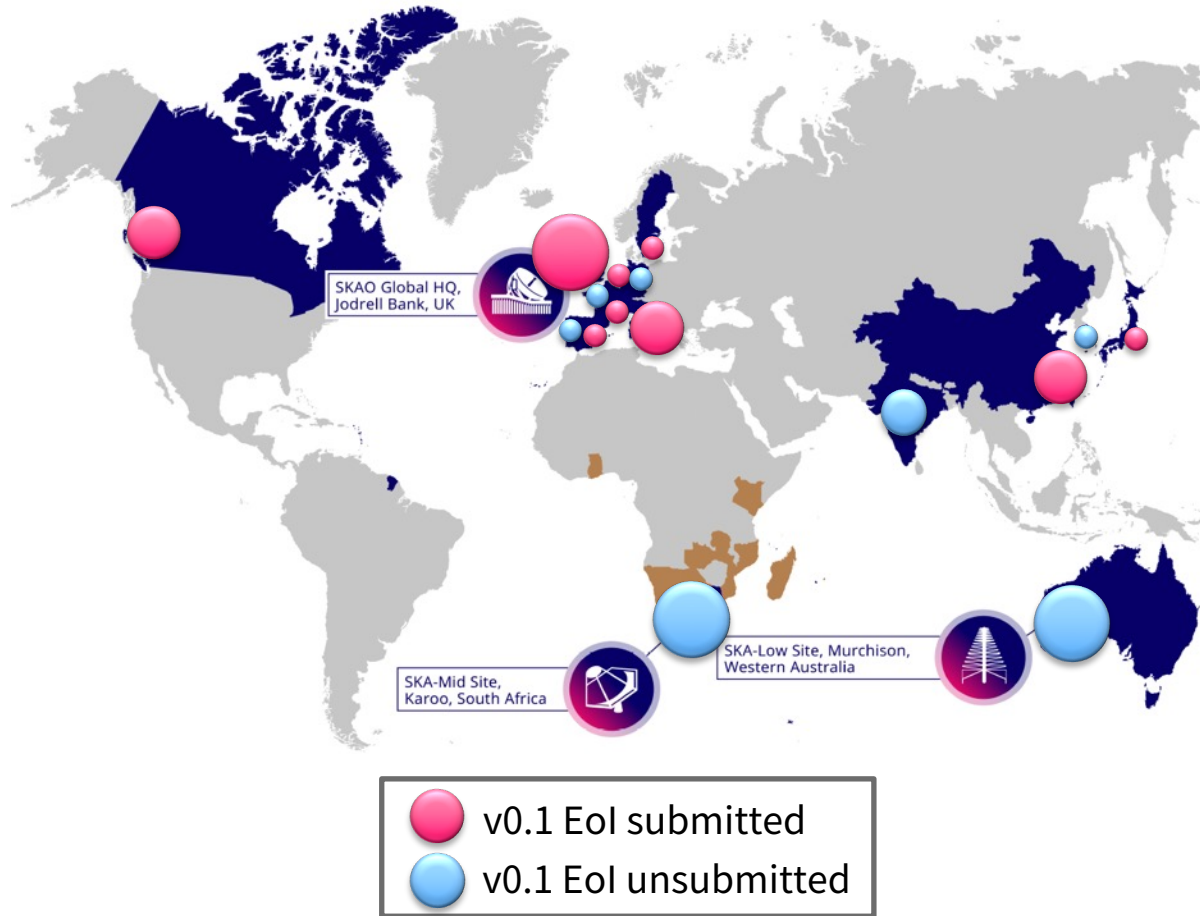
2% Contribution
10 TFlops
420 TB

=



Is this contribution critical for SRC technology demonstration of v0.1?

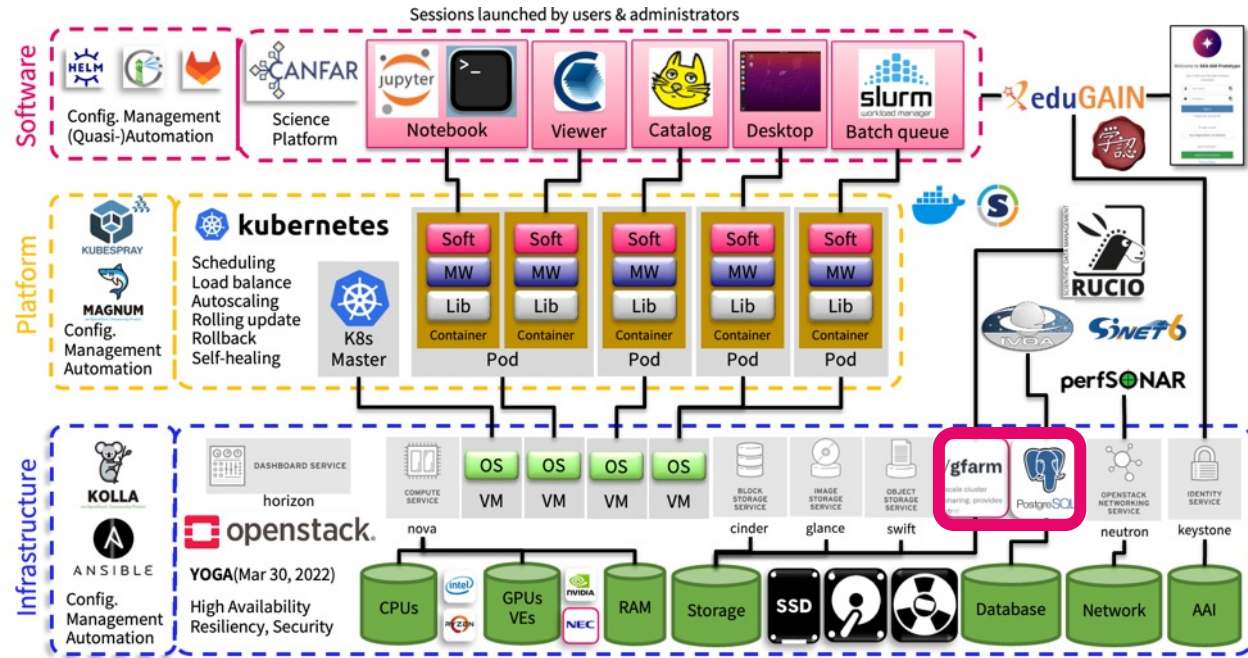
Location



China and Japan are located at the eastern end of the network.

- Long-haul networks to/from
- South Africa through Indian Ocean
 - Canada through Pacific Ocean
 - Europe through Arctic Ocean

Without Japan, only China represents the eastern. Is this enough for the v0.1 demo?



JPSRC system is like those adopted in other nodes. But **gfarm** (+PostgreSQL) is a unique point.

Is it useful for us to include such a unique filesystem in the v0.1 demo?

The gfarm file system is adopted in the Fugaku project.

The relevant Objectives in PI19/20

[SPO-2592](#) Exploration of HPC technology solutions in Japan

[SPO-2756](#) Exploration of HPC technology solutions in Japan part 2



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JPSRC Laboratory

GPU
machine

Main
CPU
GPU
Storage

OpenStack
Controller
& K8s master

NEC's
Vector Engine

Intercontinental
OpenStack
testbed

Storage server

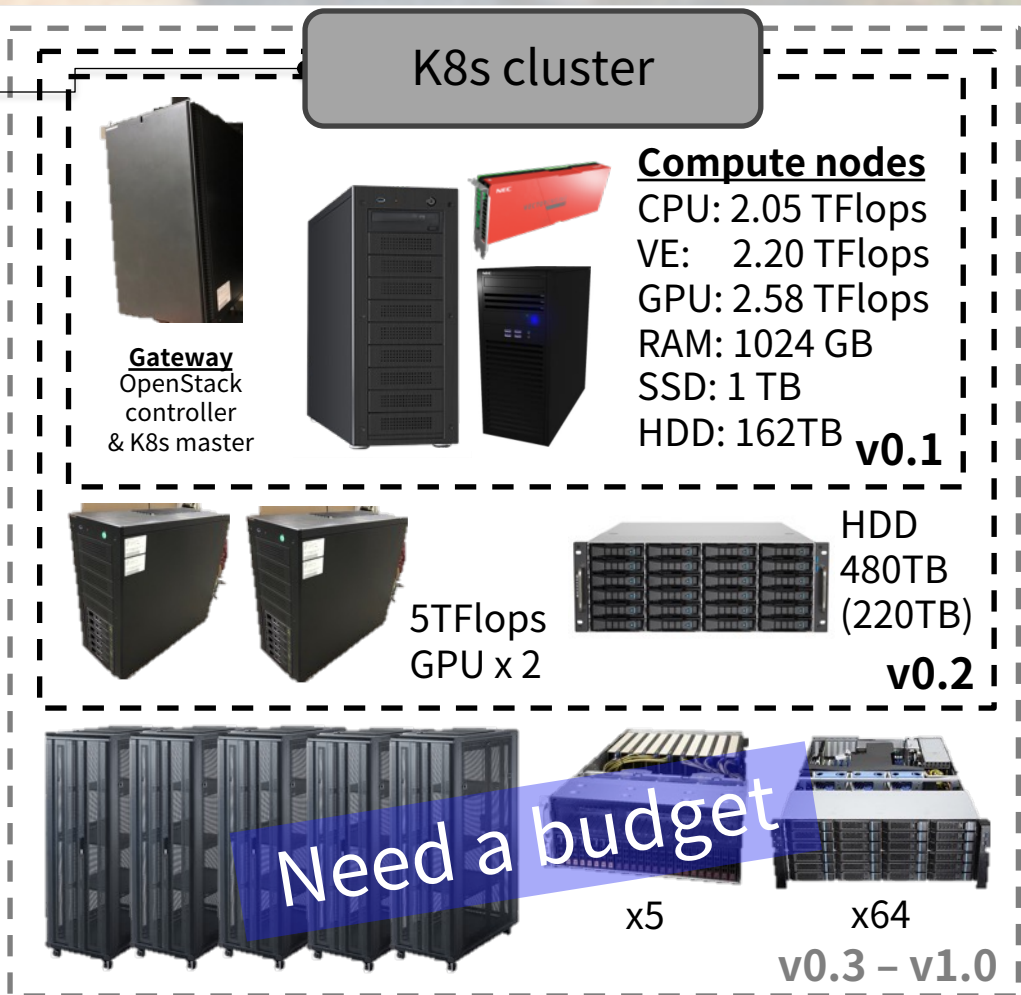
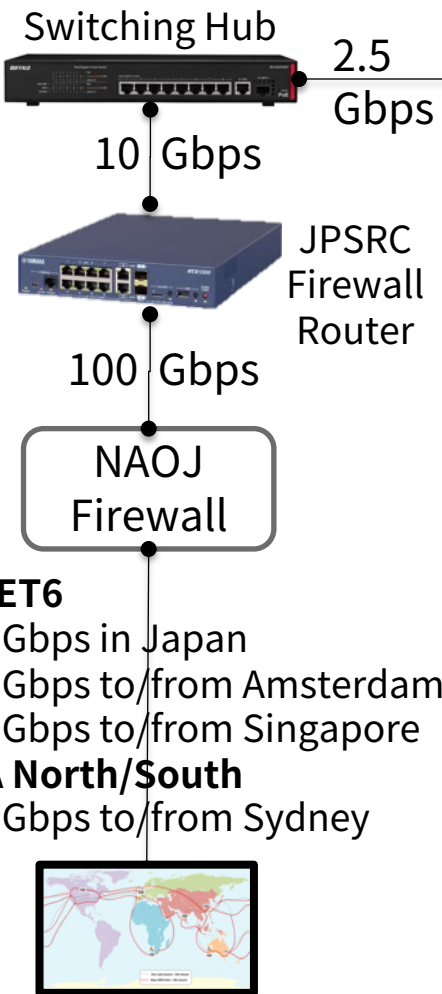
A new
fileserver
just arrived



Hardware

SRC v0.1 Compli:

SRC	Japan SRC
Compliance Level	Meets most requirements
Summary	Strong proposal, although maybe limited in operations
Software Stack	To be determined (likely compatible)
People (FTEs)	0.175 FTEs (agreed upon in SRCSC)
Operations (Turnaround)	Possible (3 working days)
Network (Gbps)	Minimum 10 (planned upgrade to 100Gbps) 400Gbps backbone
Network (IPv6)	Implemented
Storage (PB)	0.144 PB
Compute (PFLOPS)	0.005 PFlops (FP64) in total



Software

Sessions launched by users & administrators

Software

Config. Management (Quasi-)Automation: HELM, Ansible, Terraform

Science Platform: CANFAR

Notebook: jupyter

Viewer: JupyterLab

Catalog: CILogon

Desktop: Desktop Environment

Batch queue: slurm workload manager

Platform

KUBESPRAY, MAGNUM: Config. Management Automation

kubernetes: Scheduling, Load balance, Autoscaling, Rolling update, Rollback, Self-healing

K8s Master

Pod: Soft, MW, Lib

Infrastructure

KOLLA, ANSIBLE: Config. Management Automation

openstack: YOGA (Mar 30, 2022) High Availability, Resiliency, Security

horizon: DASHBOARD SERVICE

nova: CPUs, GPUs VEs, RAM

cinder: Storage, SSD

glance: Image Storage Service

swift: Object Storage Service

gfarm: scale cluster sharing, provides strol

PostgreSQL: Database

neutron: Network

keystone: AAI

Block Storage Service, Image Storage Service, Object Storage Service

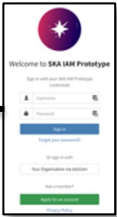
eduGAIN

SCIENTIFIC DATA MANAGEMENT: RUCIO

IVOA

SINET6

perfSONAR



Human Resource

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From PI23 (July 2024)

Lead **Takuya Akahori** (50% → 10% FTE)

Council Obs.
Resource board

Head of JPSRC **TBD** (10% FTE)

JPSRC Lead



Kazuyoshi Yamashita (50% FTE)

VMs, K8s



Shintaro Yoshiura (50% FTE)

AAI, Sci. Plat.

TA's assistant (up to 50% FTE)

TBD



Shinsuke Ideguchi (10%FTE)

Filesystem



Ryo Kato (10%FTE)

Workflow



Haruka Sakemi (10%FTE)

Workflow



Yuhei Iwata (10%FTE)

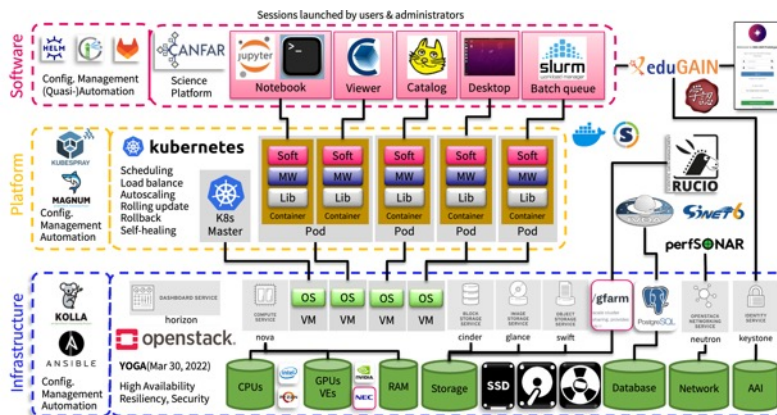
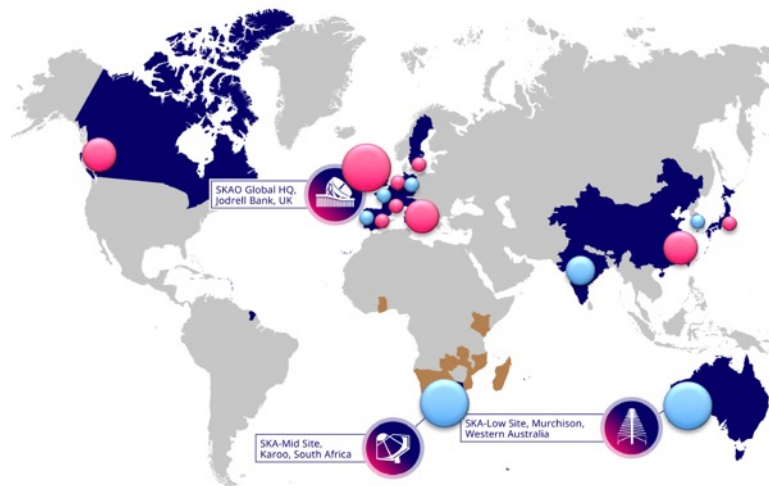
Web

■ Open questions

- 2% means a workstation.
- Without Japan, only China is a demonstrator at the eastern end of the network.
- With Japan, gfarm file system can be demonstrated.

■ JPSRC will

- Be a laboratory for a while
- Be a cloud of IaaS, PaaS, SaaS
- Have ~1.5 FTE + α



Backup slide: budget

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	2023	2024	2025	2026	2027	2028	2029	2030
Telescope	-	AA0.5	AA1	AA2	AA*	Rev.	AA4	AA4
SRCNet		v0.1	v0.2	v0.3	v1.0b	v1.0	v1.0	v1.0
PFlops		0.01	0.07	0.11	0.35	0.70	0.7	0.7
PB		0.42	2.12	3.18	10.6	21.2	~40	~60
Min. Cost		achieved	60M ¥	60M ¥	80M ¥	160M ¥	~140M ¥	~140M ¥
JSPS		budget request	funded		funded			
Universities		prep.	budget request		funded			
Frontier	RM2023 unsuccess	prep.	prep.	RM2026	budget request		funded	

RM = MEXT Roadmap every 3 years (like Decadal Survey)

MEXT: Ministry of education, culture, sports science and technology (Government)

JSPS: Japan Society for the Promotion of Science (funding agency)