STN4(Subaru Telescope Network) Plan

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Subaru UM 1/14-15/2010

STNの歴史
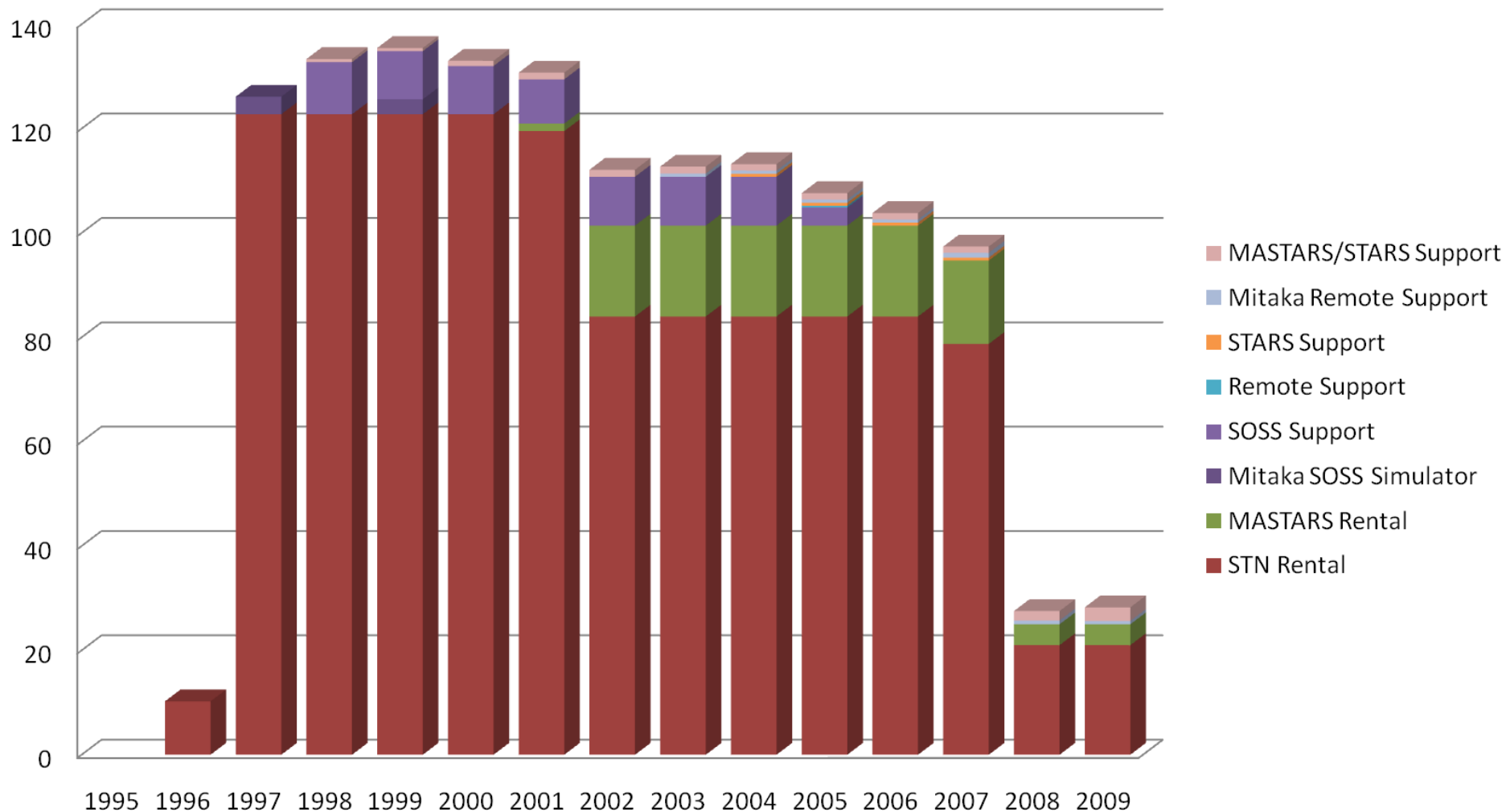## History of STN

First generation (STN1) 1997-2002

Second generation (STN2) 2002-2008

Third generation (STN3) 2008-2013

Fourth generation (STN4) 2013-?

STN年間予算(単位 1000万円)

STN Annual Budget (in 10M yen or 100K USD)

STN3(2008-2013)の予算規模
Budget of STN3 (2008-2013)

- レンタルハワイ分
    2.1億円/年
- レンタル三鷹分
    4000万円/年
- STARS/MASTARS運用支援
    1900万円/年 (*)
- 三鷹リモート運用支援
    480万円/年 (*)
* 2009年度実績

- Hawaii Rental
    210M yen/year
- Mitaka Rental
    40M yen/year
- STARS/MASTARS Operation Support
    19M yen/year (*)
- Mitaka Remote Operation Support
    4.8M yen/year (*)
* Budget in FY 2009

STN3はSTN2の約1/4の金額
STN3 costs only a quarter of STN2

- スーパーコンピュータ
- 解析計算機(gWS)
- SOSSの開発/試験環境を削減

The following functions were removed:

- Super Computer
- Data analysis computers (gWS)
- Development/test computers for SOSS

STN4は?

How will STN4 be?

すばる計算機の中長期計画のたたき台を作るWG
A working group to draft mid to long term computer plans of Subaru Telescope

- 審議事項
  - 要/不要な機能の洗い出し
  - 調達方法の設定
  - 費用・人員見積
- メンバ
  - 高田唯史
  - Eric Jeschke
  - 能丸淳一(世話人)

- Points of discussions
  - Identify functions that are needed and are not needed.
  - Identify the way of procurement.
  - Estimate cost and manpower
- Members
  - Tadafumi Takata
  - Eric Jeschke
  - Junichi Noumaru (Chair)

要/不要な機能の洗い出し
Identify functions that are needed and are not needed

- 現在STN3にある機能で不要なものはない。
- これからの議論項目
  - 現在STN3にはないが、STN4に必要な機能
  - 現在レンタル契約に含まれていない無線LAN、テレビ会議装置、ファイルサーバ、プロジェクトサーバ、データ解析サーバなどをSTN4でどう取り扱うか
  - Gen2に含まれないANAの取り扱い
  - ユーザ管理/支援システム(新機能)の検討
  - その他

- All the STN3 functions are essential and necessary for observatory operation.
- Items to be discussed in the WG
  - Functions that STN3 does not have but STN4 might have.
  - How STN4 should handle items that are not covered by the STN3 rental contract such as WiFi, video conference, file servers, project servers or data analysis servers.
  - What to do with the replacement of ANA, which would not be included in Gen2.
  - Study of User Management/Support System (New Function)
  - Other

調達方法の設定
Identify the way of procurement

- 購入・リース・内製
- レンタル(機器は施設内に置き、サービスを購入)
- アウトソーシング(機器は契約者の施設に置き、サービスを購入)

- Buy, lease or in-house
- Rental (equipment is installed in the Subaru facility and buy service)
- Outsourcing (equipment is installed in the facility of the contractor and buy service)

調達方法に選択肢がある機能
Functions that have procurement options

- アーカイブ機器
- ネットワーク機器
- 各種サーバ
- STARSのハードウエア
- プロジェクトサーバ
- データ解析用サーバ

- Archive device
- Network device
- Servers
- STARS hardware
- Project servers
- Data analysis servers

調達方法により多くの選択肢がある機能
Functions that have more procurement options

- 電子メール
- Webサーバ

購入・リース・内製・レンタル・アウトソーシングのいずれも可能

- Email
- Web server

Any option (buy, lease, in-house, rental, outsourcing) could be possible.

調達方法が一意に決まっている機能
Functions that have a fixed option

- Gen2ソフト・ハード
- STARSソフトウエア

- Gen2 software, hardware
- STARS software

4つの調達ケースについて検討を継続中
Study is in progress for four procurement cases

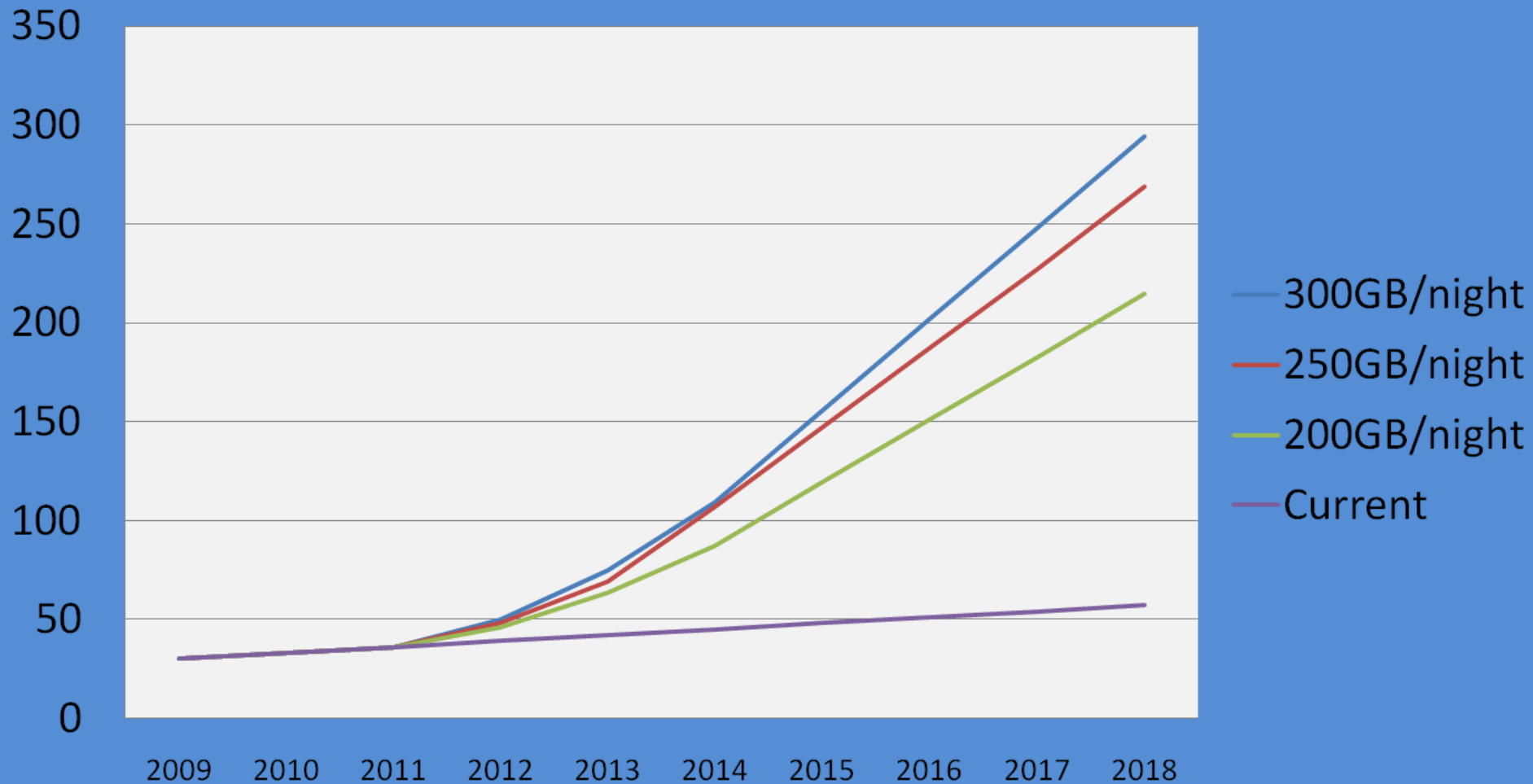| Category	Item	Common for all options HW	Common SW	Case 1: Outsource as much as possible HW	Case 1 SW	Case 2: Buy/Lease as much as possible HW	Case 2 SW	Case 3: Buy/Lease AMAP, but outsource web/mail HW	Case 3 SW	Case 4: Rent as much as possible HW	Case 4 SW	Common Data Analysis System	Current HW	Current SW
Observation Control Systems	Summit	Buy/Own	In-House	Buy/Own	In-House	Buy/Own	In-House	Buy/Own	In-House	Buy/Own	In-House	ana, ana2	Rental	In-House
	Hilo Remote	Buy	In-House	Buy	In-House	Buy	In-House	Buy	In-House	Buy	In-House	hana	Rental	In-House
	Simulator	Buy/Own	In-House	Buy/Own	In-House	Buy/Own	In-House	Buy/Own	In-House	Buy/Own	In-House		Rental	In-House
	Mitaka Remote	Buy	In-House	Buy	In-House	Buy	In-House	Buy	In-House	Buy	In-House	sbana	Buy	Rental/In-House
Data Archive System	STARS		In-House	Buy/Lease	In-House	Buy/Lease	In-House	Buy/Lease	In-House	Rental	In-House		Rental	Rental
	MASTARS		In-House	Buy/Lease	In-House	Buy/Lease	In-House	Buy/Lease	In-House	Rental	In-House		Rental	Rental
Data Library	Hilo			Outsource		Buy/Lease		Buy/Lease		Rental			Rental	
	Mitaka			Outsource		Buy/Lease		Buy/Lease		Rental			Rental	
Network	Router/Switch			Buy/Lease		Buy/Lease		Buy/Lease		Rental			Rental	
	Firewall			Buy/Lease		Buy/Lease		Buy/Lease		Rental			Rental	
	Load Balancer			Buy/Lease		Buy/Lease		Buy/Lease		Rental			Rental	
	IF for PBX			Buy/Lease		Buy/Lease		Buy/Lease		Rental			Rental	
	IP over ATM	Buy/Own		Buy/Own		Buy/Own		Buy/Own		Buy/Own			Own	
	Wireless AP			Buy/Lease		Buy/Lease		Buy/Lease		Rental			Own	
Business Systems	Proxy, Monitoring Tools, DNS, SNMP, SMTP			Buy/Lease		Buy/Lease		Buy/Lease		Rental			Rental	
	Login			Buy/Lease		Buy/Lease		Buy/Lease		Rental			Rental	
	License			Buy/Lease		Buy/Lease		Buy/Lease		Rental			Rental	
	Web			Outsource		Buy/Lease		Outsource		Rental			Rental	
	Mail, IMAP, POP, SMTP			Outsource		Buy/Lease		Outsource		Rental			Rental	
	File Server			Outsource		Buy/Lease		Buy/Lease		Rental			Rental	
	Printers	Buy/Own		Buy/Own		Buy/Own		Buy/Own		Buy/Own			Own	
Project Servers	Windows File Server			Outsource		Buy/Lease		Buy/Lease		Rental			Own	
	Elvis		In-House	Outsource	In-House	Buy/Lease	In-House	Buy/Lease	In-House	Rental	In-House		Own	In-House
	Tours/ObsRep		In-House	Outsource	In-House	Buy/Lease	In-House	Buy/Lease	In-House	Rental	In-House		Own	In-House
	STS		In-House	Buy/Lease	In-House	Buy/Lease	In-House	Buy/Lease	In-House	Rental	In-House		Own	In-House
	Linux, Windows workstations for common use			Buy/Lease		Buy/Lease		Buy/Lease		Rental		Linux workstations	Own	
	Video Conferences	Buy/Own		Buy/Own		Buy/Own		Buy/Own		Buy/Own			Own	
	Purchase Request	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD		TBD	TBD
	DA server			Buy/Lease		Buy/Lease		Buy/Lease		Rental		da1, da2	Own	In-House
	Subaru Wiki		In-House	Outsource	In-House	Buy/Lease	In-House	Buy/Lease	In-House	Rental	In-House		Own	In-House
	Sharebaru		In-House	Outsource	In-House	Buy/Lease	In-House	Buy/Lease	In-House	Rental	In-House		Own	In-House
	Issue Tracker		In-House	Outsource	In-House	Buy/Lease	In-House	Buy/Lease	In-House	Rental	In-House		Own	In-House
	RT (Request Tracker)		Free/Use IT	Outsource	Free/Use IT	Buy/Lease	Free/Use IT	Buy/Lease	Free/Use IT	Rental	Free/Use IT		Rental	Free/Use IT
Common Data Analysis System	Server			Buy/Lease	In-House	Buy/Lease	In-House	Buy/Lease	In-House	Rental	Rental	Servers	Non-existent	
	Workstations			Buy/Lease	In-House	Buy/Lease	In-House	Buy/Lease	In-House	Rental	Rental	Workstations	Non-existent	

STARS 2

- 2010年中に、限られたデータについて、検索とデータ提供機能のベータ公開を目指す。
- アーカイブ装置はより大容量になり、価格も上昇する。
- データの安全の保存と高速アクセスを両立させる現実的なSTARS/MASTARSの構成を検討中。
- S10Aユーザを対象にベータテストへの参加を呼びかけます。御協力をお願いします。

- Beta functions for query and data provide will be made available for limited data within 2010.
- STARS 2 needs archive device of larger capacity than current STARS – archive will be more expensive.
- Feasible solutions of STARS/MASTARS that assure data safety as well as fast access to the data are now studied.
- Beta test will be opened to S10A users. The participation is appreciated.

STARSのアーカイブはHSCのデータが支配的になる
HSC becomes a dominant data supplier for STARS archive.

STARS Archive Projections through 2018 in TB

- 300GB/night
- 250GB/night
- 200GB/night
- Current

もし、現在レンタルしているものを別の方法で調達するのであれば...

If functions we are renting now is to be procured by other ways...

- 設計・仕様作成・人材の確保
- システムの構築
- 移行試験

に十分な時間が必要。

次システムを選定と購入は、レンタル導入よりも1年程度前倒しにしなければならない。これは STN3レンタル期間中にあたる。

Reasonable time must be spent for:
- Design, building specification, hiring
- System installation and configuration
- Migration test

We must start specifying and purchasing the next system about a year in advance of our usual procurement timeline, well within the term of the STN3 rental contract.

	2011												2012												2013								
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9
Rental (Overlay of STN3 procurement)													Specifications		Bidding			Design			Installation				Operation								
													STARS data backup																				
Buy, lease or outsource (An example)			Specification/Prototyping							Design				Order & Shipping			Installation and Test				Operation												

共同利用ユーザ管理/支援機能

Management/Support Functions for Open-Use Users

現在ある機能

- プロポーザル投稿
- (来訪申請)
- Opeファイル交換 (試験中)
- 観測制御
- データアーカイブ
- 共同利用報告

Existing functions

- Proposal management
- (Visitor form)
- Ope file sharing (testing)
- Observation control
- Data archive
- Open use report

これらの機能の問題点
A problem of the functions

- 従来、業務の担当者が必要に応じてシステムを個別に設計、製作(あるいは製作依頼)をしてきたため、ユーザにとっては使いにくい、あるいは同じ情報を何度も入れなければならない、あるいはアカウントが複数会って混乱する、といったことが起きている。

- 似たような情報を複数の部署の複数の人が管理しているので、観測所としての作業効率を落とし、無駄を生んでいる。また、情報が錯綜し、混乱することもある。

- A person or team in charge of the task designed, created or ordered the system. This results in the systems which are complicated and hard to use for the users. For example, users have to enter the same information into each system and multiple account IDs are just confusing.

- Multiple people in multiple teams maintain separately the similar information. This decrease the efficiency of observatory operation. Also, this may result in confusion of information.

根本の原因
The root cause

- 観測者の一連の作業の流れを監督する責任者がいない、あるいは調整する機能がない。

- There is no person in charge of overall functions open-use users will use, or no mechanism to coordinate such functions.

解決方法
The solution

- 関係者が集まって、観測者へのIFに関して取り決めを行う。
- 監督責任者を置く。
- 複雑なプロポーザルID、ユーザID、グループIDを整理するための努力をする。
- 各種IDの管理を一元化し、各システムは一元化されたユーザDBを参照するようにシステムを改変する。
- 共通のGUIに基づくシステムの再構築を行う。

以上の議論は、計算機資源をどう使っていくかというものであり、観測所の各部門や所長室の役割を見直すことにつながる可能性がある。

- Define interface of systems to observers and agree at the interface among teams in charge of each function.
- Define a person in charge of functions that open-use observers will use.
- Consolidate and simplify various IDs such proposal ID, user ID and group ID.
- Consolidate ID management to a single database and each system will look up the database.
- Rebuild the systems based on the common GUI.

The above discussion is not for a procurement but for how we'll use the computer resources. Therefore, the discussion may result in reviewing the function/responsibility of each division or Director Office.

現在想定しているSTN4と共同利用観測者
STN4 as of the current idea and open-use users

- SOSSがGen2に移行する。
- STARS 1.4がSTARS 2に移行する。
- ヒロリモートは維持
- 三鷹リモートは存廃を含めて検討中。ただし、Gen2のリモート機能により、「どこからでもリモート」を技術的にサポートする可能性がある。
- ANA・HANAなどの解析環境はGen2には含まれない。2013年1月まではSOSSのANAを使用。その後は未定。
- 山頂・HP・山麓ビジター室・ヒロリモート室にあるLinuxマシンと解析環境を融合するか?
- 大部分の観測者にはそれ以外の影響はない。

- Gen2 takes over from SOSS.
- STARS 2 takes over from STARS 1.4
- Hilo remote will remain.
- Mitaka remote may or may not remain. Gen2 may technically support "remote observation from anywhere."
- Gen2 does not include data analysis computers such as ANA or HANA. SOSS ANA may be used until January 2013. Data analysis computers after that is TBD.
- One possibility is to merge Linux machines at the summit, HP, Hilo visitor room and Hilo remote room into the new 'Data Analysis System'.
- No other major impact to open-use users.

ご意見・ご要望は？

Comments and suggestions?