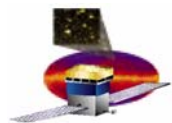


GLAST Large Area Telescope: I&T Integration Readiness Review

Online Peer Review
July 21, 2004

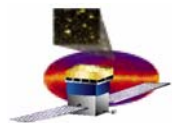
Core II

Jim Panetta
I&T Online
SLAC

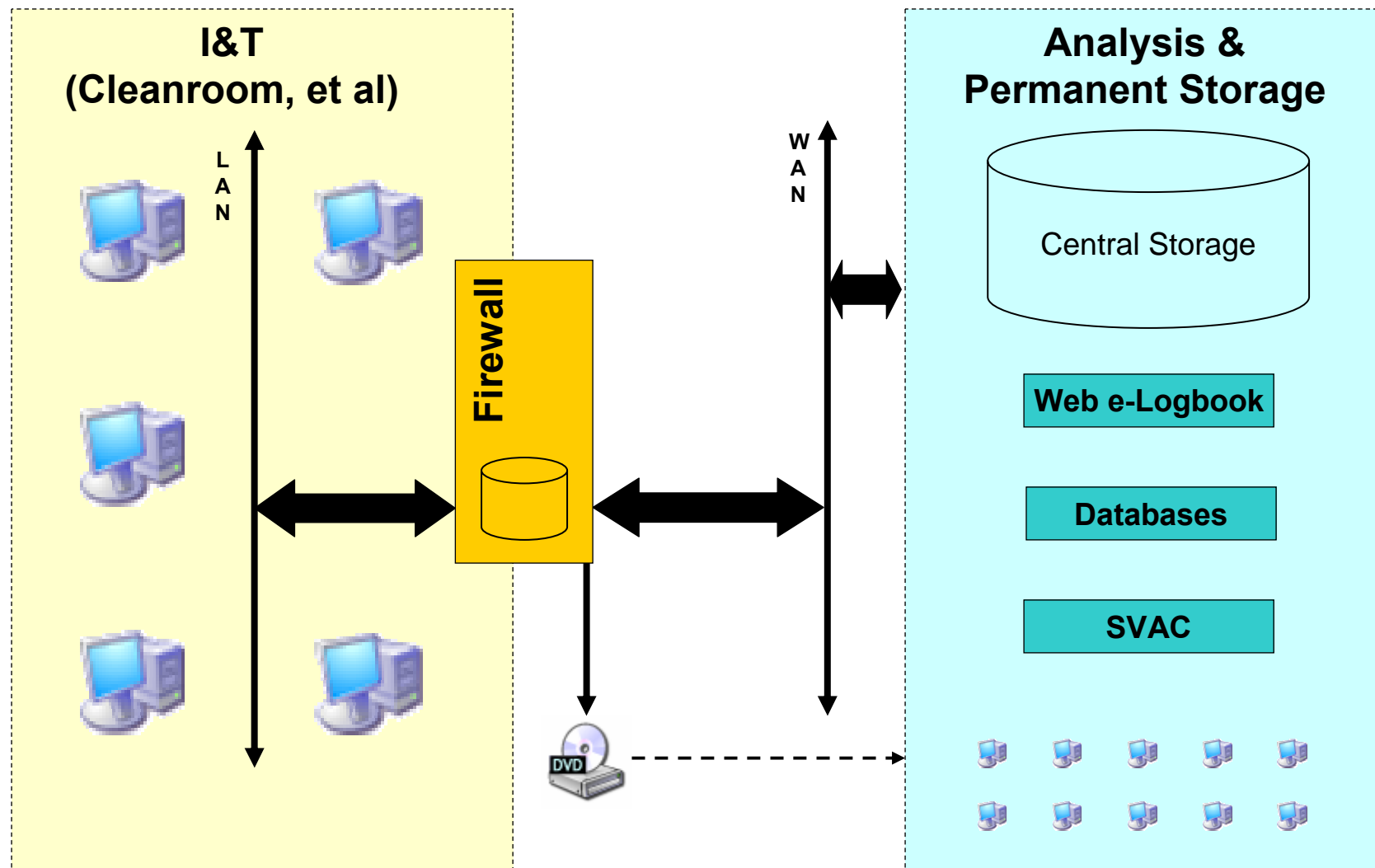


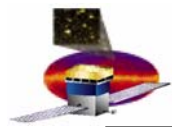
Introduction

- **Data handling**
 - **Data persistence**
 - **Pipeline to SVAC**
- **Data products**
- **Data parsing**
- **Issue tracking**
 - **LATTE Issue tracker**
- **Trigger System**



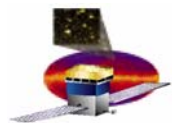
Persistent Data Transport





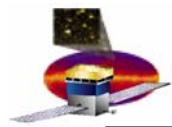
Data Export

- Data must be tracked and transferred to permanent storage
- Export utility ensures data integrity
 - Export via LAN (Cleanroom Operations)
 - Direct export facility for run data
 - Temporary storage on Firewall DMZ
 - Database synchronization tools
 - Electronic logbook
 - Trending
 - Export to DVD±R (Remote operations)
 - Run files copied to DVD by shifters
 - LDF parser included on DVD
 - ~20 GB/day → ~5 DVD (4.5 GB)



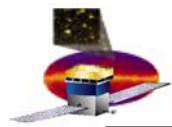
Data Handling

- **Data Persistence / Handoff to SVAC**
 - **Utilize data pipeline infrastructure from SAS**
 - **Automated data processing and distribution**
 - **Highly configurable scripting**
 - **All steps logged and traceable**
 - **Web interface**
 - **Permanent storage on SLAC data farm**
 - **Database import to Oracle**
- **Currently in progress**



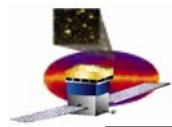
Data Products

- **Science data (FITS encapsulated LDF)**
 - Includes Run Report data
 - Orientation, User, Instrument type, Particle type ...
- **Configuration data (XML)**
 - HW schemas
 - HW settings
- **Script test Reports (HTML)**
 - Test Results
 - Plots
 - Calibration data
- **Housekeeping (HSK) data (SQL compliant DB)**
 - Alarms and Alerts
 - Trending
- **Electronic Logbook database (SQL compliant DB)**
 - Run condition information



Data parsing

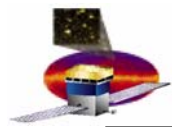
- **LAT Data Format (LDF) data**
 - Hierarchical binary data structure
 - Python and C++ parser
 - Object oriented design
 - Extensible
 - Deliverable to SAS
- **LAT Configuration data (LATc)**
 - Register representation of the entire LAT
 - Generated from / Converted to SchemaConfig XML
 - Parsing a responsibility of FSW
- **Other products**
 - ACD software scalers
 - Similar items TBD



LATTE Issue Tracker

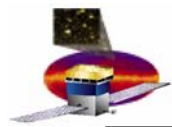
- **Roundup**
 - Free, Open Source
 - Web based
 - MySQL backend
 - Email communication
 - In active use
- **Task Prioritizing**
- **History of progress**
- **Fast, Scalable**
- **Minimal admin overhead**

ID	Activity	Title	Status	Created By	Assigned To
159	yesterday	"Unexpected tag: INCLUDE" at GAEM level in schema file	critical chatting	kcalvert	
176	5 hours ago	badStrips file	urgent chatting	lbaldini	panetta
175	yesterday	rcTrgMiniGLT bug(s)?	chatting	Leas	
160	yesterday	Alarm monitoring via EnvMon	chatting	Leas	panetta
156	yesterday	local Export Directory feature	done (Pending Release)	Leas	
72	2 weeks ago	Hippodraw Linear function additional parameter request	chatting	kcalvert	
163	3 weeks ago	CAL Parity error messages	chatting	Leas	
148	1 month ago	bad events file analysis	chatting	Leas	
139	1 month ago	QPaint Error	in-progress	cjerry	
89	1 month ago	CAL access to GLT in LATTE P03-00-00	bug chatting	Leas	
171	yesterday	Access rights for data export files	chatting	borgland	
161	yesterday	msvc71.dll error?	chatting	Leas	
113	yesterday	TEM initialization	done (Pending Release)	claus	
164	1 week ago	HippoDraw update	chatting	lbaldini	
170	2 weeks ago	Latte detect of existing power ON condition after crate reboot	chatting	canfield	
162	3 weeks ago	Printing from Register Browser	chatting	kcalvert	
157	1 month ago	Housekeeping logging error	chatting	Leas	
158	1 month ago	message logger error	chatting	Leas	
119	1 month ago	logging package sometimes crashes RunControl when exit is requested	chatting	claus	
96	1 month ago	mutex lock problem	need-example	htajima	
117	1 month ago	VxWorks lock-up at high event rates	in-progress	claus	
136	1 month ago	Hang with instantiating CanvasWindow when default printer is unavailable	unread	stuvl	pkfeb
112	2 months ago	Register browser weirdness	unread	claus	
109	2 months ago	RunControl.cfg gets corrupted	unread	claus	
101	yesterday	trigger class specification discussion	feature chatting	Leas	panetta
172	1 week ago	Refresh static histograms	deferred	lbaldini	
167	2 weeks ago	GOSED	chatting	lbaldini	
152	1 month ago	CAL Ancillary Data Fits Format	chatting	Leas	
151	1 month ago	LDF print statement removal	chatting	Orsborne	
146	1 month ago	Header Levels in rcTestReport	unread	Leas	
70	1 month ago	Export Data enhancement to allow file	chatting	Leas	panetta



Trigger

- Two trigger systems to support
 - **MiniGLT**
 - **Simplified trigger system**
 - VME card
 - One input supported (TEM / AEM)
 - Firmware emulation of trigger logic
 - **Used in receiving tests (CAL / TKR / ELX)**
 - **GASU**
 - **Full flight trigger system**
 - Separate hardware
 - Multiple inputs supported (16 TEM, AEM)
 - Firmware flight trigger logic
 - Complex architecture
 - Redundant system
 - **Used in single tower and Grid based tests**



Trigger

- **Trigger set of classes defined by LAT-TD-03664**
- **Fully configurable, generalizable to both Mini-GLT and GASU**
- **Simple external interface:**
 - **Enable triggers**
 - **Disable triggers**
 - **Solicit triggers**
- **Rich internal features**
 - **Enable/disable individual LAT components**
 - **Differing paths depending on conditions**
 - **Prescaled triggers**
 - **Periodic trigger**
- **Now used by all subsystems, I&T and ELX**