



Guru: Building Bridges to Islands of Automation

Philosophy

Graphical
Programming

Optimization

**Test
Management**

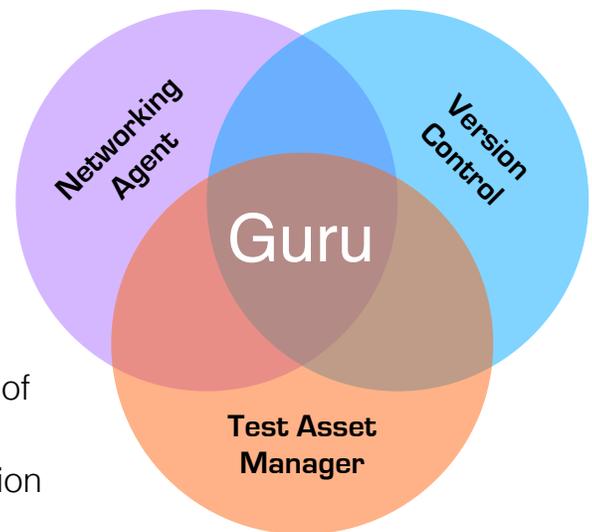
Workflow
Structure

ATE systems have always been “islands of automation.” They are highly focused and efficient at gathering data but are difficult to connect with other test and data systems. Managing file organization, backups, and setup configurations can quickly escalate in volume and complexity burdening the user with additional tasks in the development process. Guru strives to change that by making it simple and easy to share data, control the distribution of information, and manage the logistics of production test.

What is Guru?

Cassini is a collection of focused parts that function as a single unit, and Guru can be thought of as the nervous system that connects it all together. It's an application that works in concert and in the background with the system's software and workflow to provide the user with three powerful tools in one:

- An easy to use interface for controlling the release of software updates and applications.
- A tool for locating and organizing test configuration files, resources, and data.
- An automated repository and backup service that makes test design iteration and setup recovery simple.

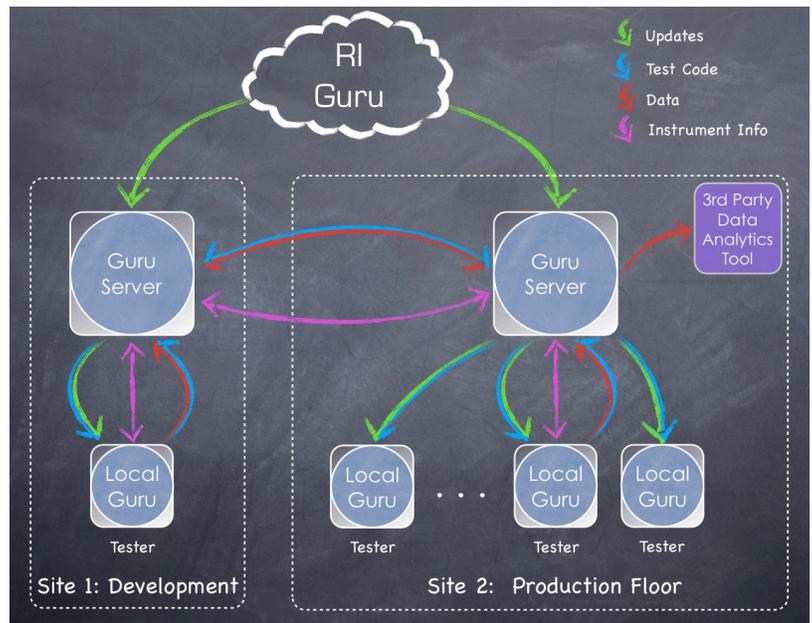
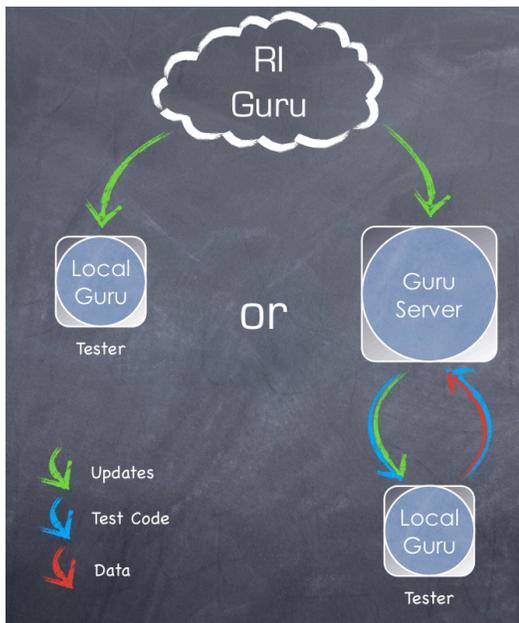
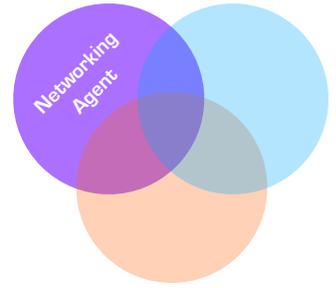


Communication Hub

These advanced features are enhanced by Guru's integrated networking capabilities providing a secure and dedicated link to pass data between other testers, servers, and third-party services. Data flow and permission controls are built in and accessed through the Guru Agent interface. This assistant makes networked data sharing easy, giving a user the confidence to manage large amounts of test information with ease. Distributing a test setup or data between multiple Cassini's on different continents is now as easy as sharing it between multiple testers in the same room.

Network to Other Gurus

Guru connects to other Gurus using a hierarchy structure to control the flow of information. If a requested file on a local drive cannot be found, Guru automatically requests it from its parent Guru. Data, tester configurations, and test code can easily be shuttled from one tester to another through this framework for quick distribution and validation. Files can be searched and selected using keys and values assigned by the user, for example, to send any new data to a special FTP account for processing by a separate database. The setup is highly flexible allowing for any number of networked schemes that can be expanded to suit a customer's specific needs.



The above flowcharts demonstrate Guru's hierarchy structure for distributing information. The left illustration shows a simple setup that can receive updates or using a server, keep continuous backups of tester setups. The right illustration shows a more advanced scheme for networking Cassini testers on multiple sites in order to control "development" releases to "production" and share tester configurations, test code, and data between locations.

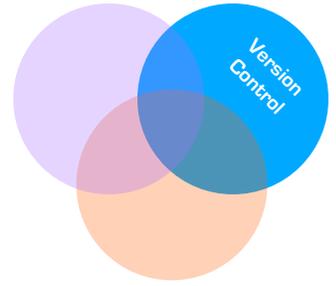
Guru is Secure

Security is a high priority when sharing information between sites, and Guru has multiple built-in safeguards:

- **Guru only talks to Guru.** Every file is digitally signed by the Guru which created it. When an object is received the signature is verified and if the signer is unknown to the receiver, the document is not trusted.
- **Files can be encrypted.** A user can set a generated key for files that only a matching key can decrypt. The encryption/decryption process is done automatically so the user is not burdened with insuring data protection.
- **Connections are firewall-safe.** Guru was designed to be compliant with existing network security or as a stand alone to prevent intrusion and block unauthorized access.

Automated Backups

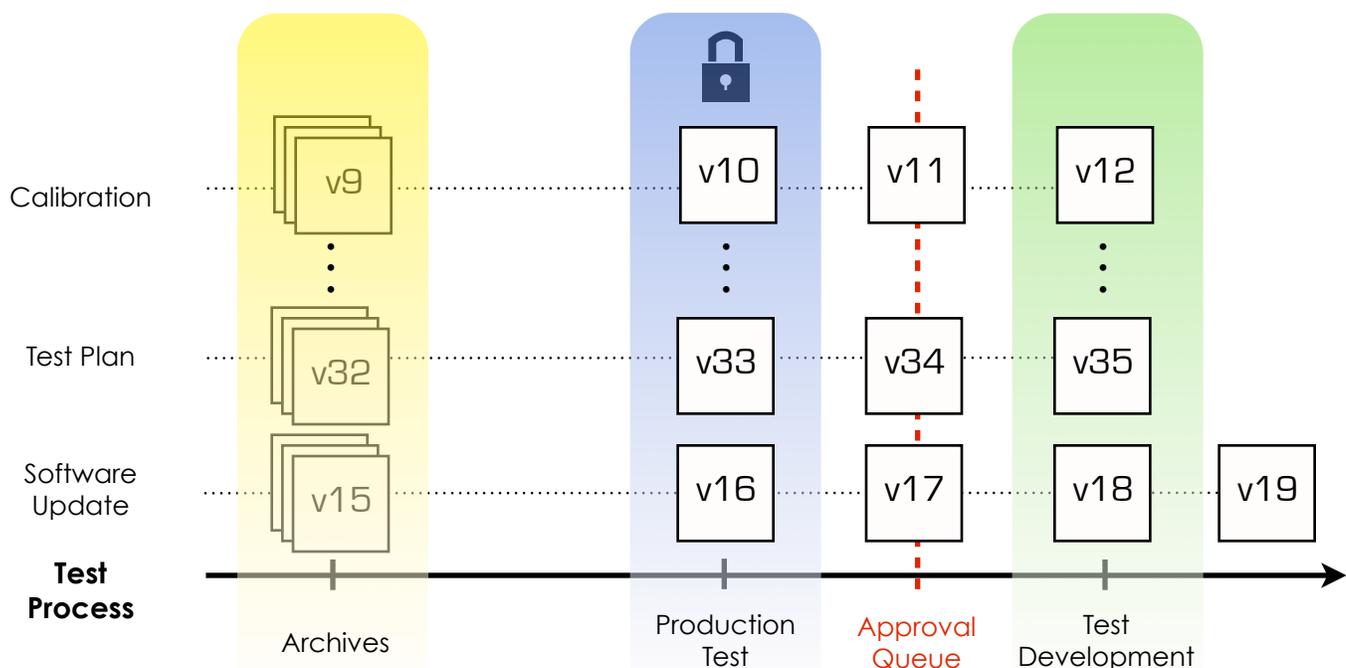
Each RI ATE system has a local Guru that backs up every test, configuration, and resource file automatically to a “backup” Guru server. This routine prevents a computer failure, one of the most disruptive and costly failures that can occur on a test floor, from compromising production schedules. If the controller fails on Cassini, getting a replacement tester back online is as simple as rolling out a new controller, inserting the Guru key, and plugging in the network cable. As soon as the tester is powered up, the empty Guru will request files from the backup Guru automatically. The “restore” process takes seconds and all of the recovered files are then saved locally, making the new controller a duplicate of the previous controller.



Test Distribution

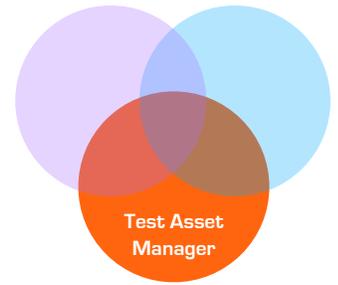
There are two distinct roles a tester must support during its lifecycle: test development and production test. During the development phase, the tester is used to explore, validate, and optimize setups and test configurations. In the production phase, the setup and configuration must be locked and the focus is on reliability, repeatability, and speed. Guru provides a control mechanism for these two roles in the software that’s reliable and simple for the user to deploy:

- **Development:** Can experiment with new software enhancements without disrupting production, log incremental design changes in tester setup, and validate test plans before release
- **Production:** Test plans, configurations, and software versions are locked, permission to modify files or setups can be restricted, and the user interface is simplified to display only essential controls to execute tests

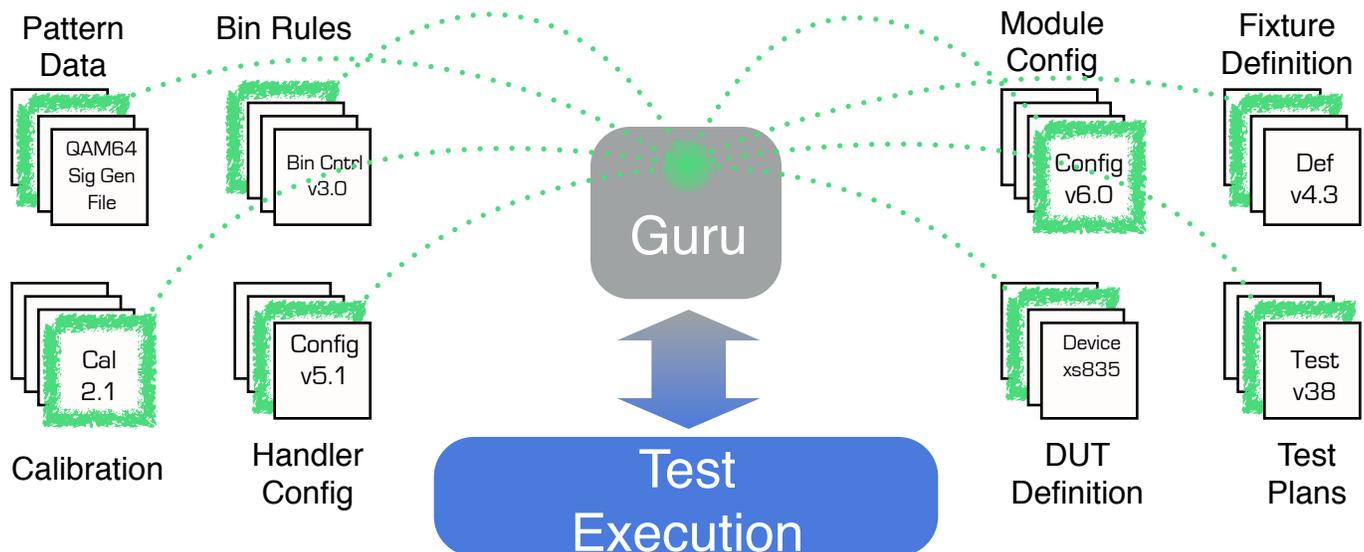


Managing Information

Cassini calls upon a number of resources within its expert system to execute a test: handler configurations, test patterns, calibration data, fixture definitions, etc. Guru provides the user with a way to keep all of these resources organized and linked to their respective test plans. When files are created or modified, they are shown chronologically with a revision history that mirrors the test iteration process. Guru also allows the creation of metadata, or tags and values assigned to these files by the user in order to group them. For example, a test plan, handler config, and test pattern can have tags such as “in development” or “released to production” associated with them. This allows the user to locate and load them as a set or to easily control which ones should or should not be seen by operators on the production floor.



“Guru knows where everything goes”



Guru helps us support the tester

We maintain a Guru server at Roos Instruments which distributes software updates to our customers. It also gives customers a way of sending back data as “service request” information that helps us diagnose and resolve customer issues which may occur in the field.

Up Next

The next document in the series, "Workflow Structure," describes the layout of typical setups and the software tools that drive the production test workflow. By taking full advantage of the suite of applications available in the Cassini system, the user can easily coordinate the multiple tasks of production tests.