Accomplishment Summary

Version 1.0
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Section 1: Equipment/System Description

The MERIT implementation of IDRP in gated runs on a PC with the BSDI version of the unix operating system. The BSDI system is based on a NET2 Berkeley release of network code. Our BSDI systems have been upgraded to include fixes to the "netiso" support so that it will support the IDRP socket and bug fixes to the ISO support.

A version of the "gated" deamon runs on top of the PC to make it a router performing local routing and functions as an IDRP BIS. The gated deamon interfaces with the kernel to set-up the forwarding table for PDUs, and to open a socket to send CLNP PDUs across.

Below is a diagram of how IDRP interacts with the unix kernel.

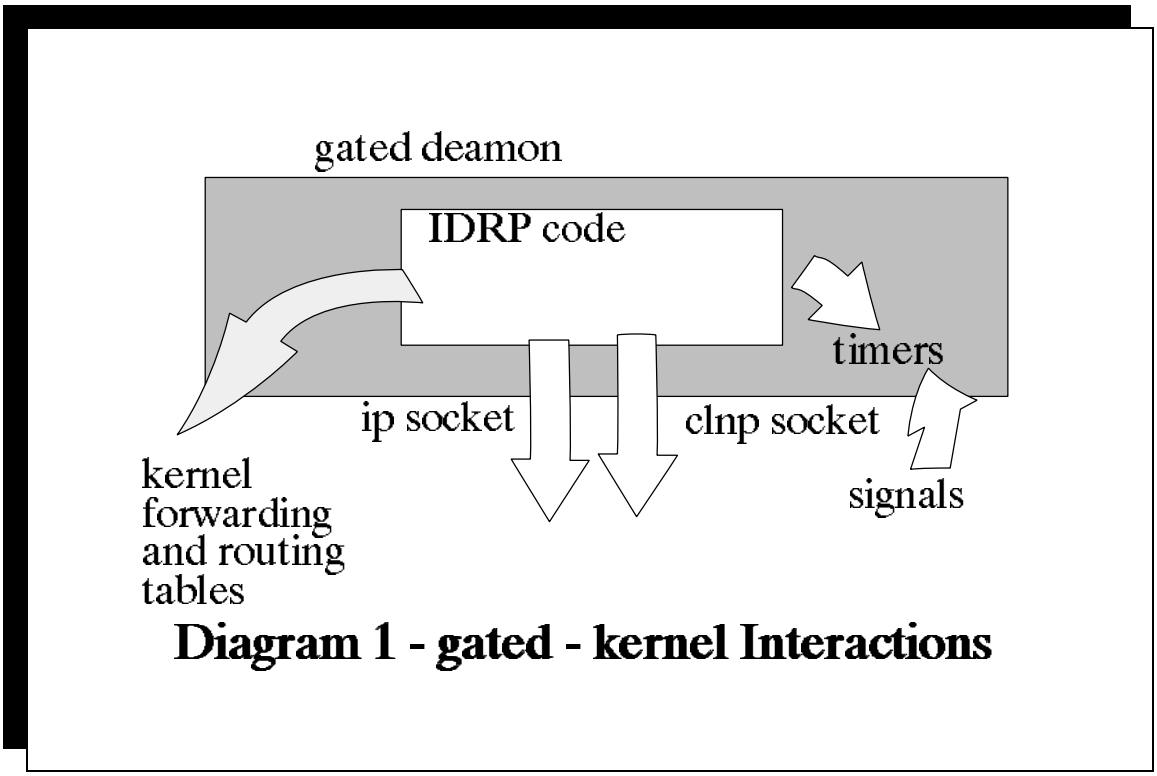

Diagram 1 - gated - kernel Interactions

The MERIT implementation may be ported to other environments. One of the design constraints was to ease portability. For further details on portability, please refer to the IDRP Design specification.

Section 2: Criticality categories and software levels

(not applicable)

Section 3: Design Disciplines

The Design techniques in the IDRP project have been to:

1st – Define the requirements

In defining the requirements, we researched what the current gated structures were and IDRP user requirements. The "gated syntax document" was produce to codify the user requirements for configuration.

2nd – Design the IDRP code modules in a top down design method.

3rd – Implement the code in a bottom up fashion for particular function of IDRP.

4th – Test groups of functions. After some amount of basic code there, begin testing to determine if the things we learned about gated were correct. As we test, record the tests in a daily log. Use the daily log to define test sequences and bug reports.

5th – If we find the design or the code hits a problem, redefine the design document and rewrite the code.

Section 4: Development Phases

Milestones

Delivery Version	Date	Functions
0.8	7/1	Rough Basic not all simplie configuration No CLNP support

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0.9	7/20	rough BASIC simple configuration files (plus NEXT HOP, SNPA, ROUTE SERVER, EXT_INFO, MULTI_EXIT support but needs testing) MIB support partial CLNP support No DIST_LIST_INCL creation no DIST_LIST_EXCL creation
0.9.1	8/3	Rib Refresh Problem solved
0.9.2	8/15	IDRP running over PC kernel with CLNP
0.9.3	9/1	NEXT_HOP fixed, DIST_LIST_INCL DIST_LIST_EXCL configurable Known bugs
1.0	9/15	Better BASIC All Functions Exist: CLNP support, DIST_LIST_INCL DIST_LIST_EXCL No minimal Minimum Advertisement Timer stress test
1.1	9/30	BASIC heavily tested Policy support for PREF
1.2	10/15	Basic plus PREF and initial DIST support

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2.0	10/30	Delivery 2 Functions Basic IDRP Test Network Tested Plus Policy for DIST and PREF support
2.1	11/10	ES-IS additions to IDRP configuration
2.2	11/15	Aggregation Documents: – New Gated Syntax – New IDRP Design Document
3.0	11/30	Delivery 3 Addition of ES-IS to the basic. More network testing on Basic functions
4.0	12/31	Delivery 4 Basic IDRP plus Aggregation and Aggregation policy

Milestones after 12/31/93 will be added in a future version of this document.

Section 5: Software Verification plan and results

Protocol software must pass correct PDUs, and add routes to the forwarding table so PDUS can be forward, and survive the changing network. Quality Assurance and Software Verification for a protocol implementation checks these basic functions plus the ability of a router to reconfigure, start and stop.

Therefore, this software verfication plan is not different from the Quality assurance plan for the IDRP implementation. At any point router software must check the same types of functions. During a Major version release, most of the high level tests for a set of existing functions will be replicated.

For any new function, careful step by step testing of individual routines verifies the software functions.

After the BASIC functionality has been checked out, the IDRP code will be tested against as many IDRP protocol scenarios as is possible with the limited number of lab resources at Merit.

Below are three Sample testing Scenrios:

Test Scenario 1 – Simple BIS to BIS Connection

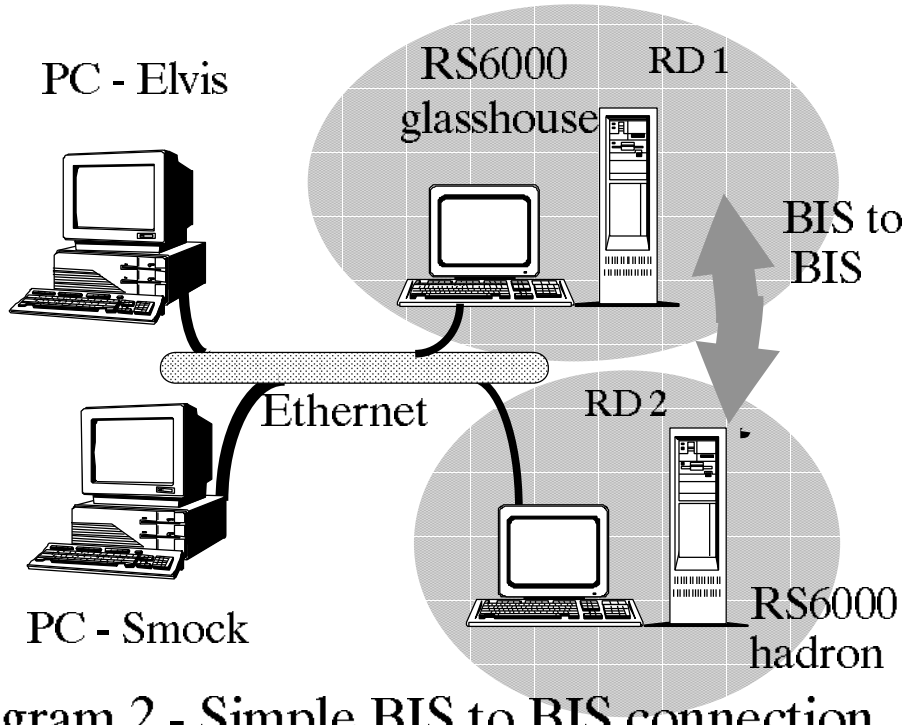

Diagram 2 - Simple BIS to BIS connection

Test Scenario 2 – BIS to BIS with Reconfiguration

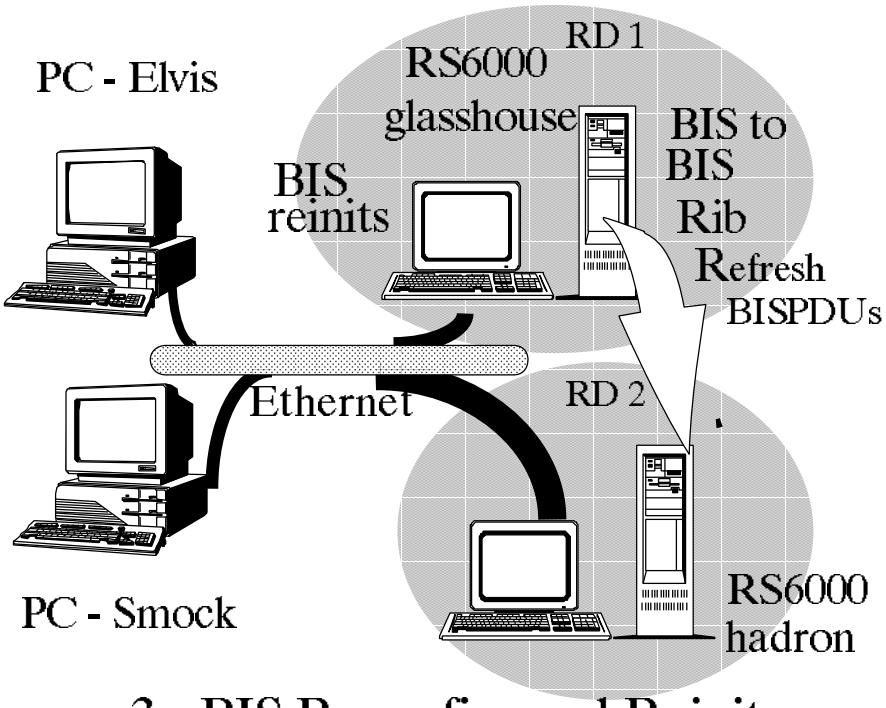

Diagram 3 - BIS Reconfigs and Reinits

Test Scenario 3 – 4 Routing Domain Test

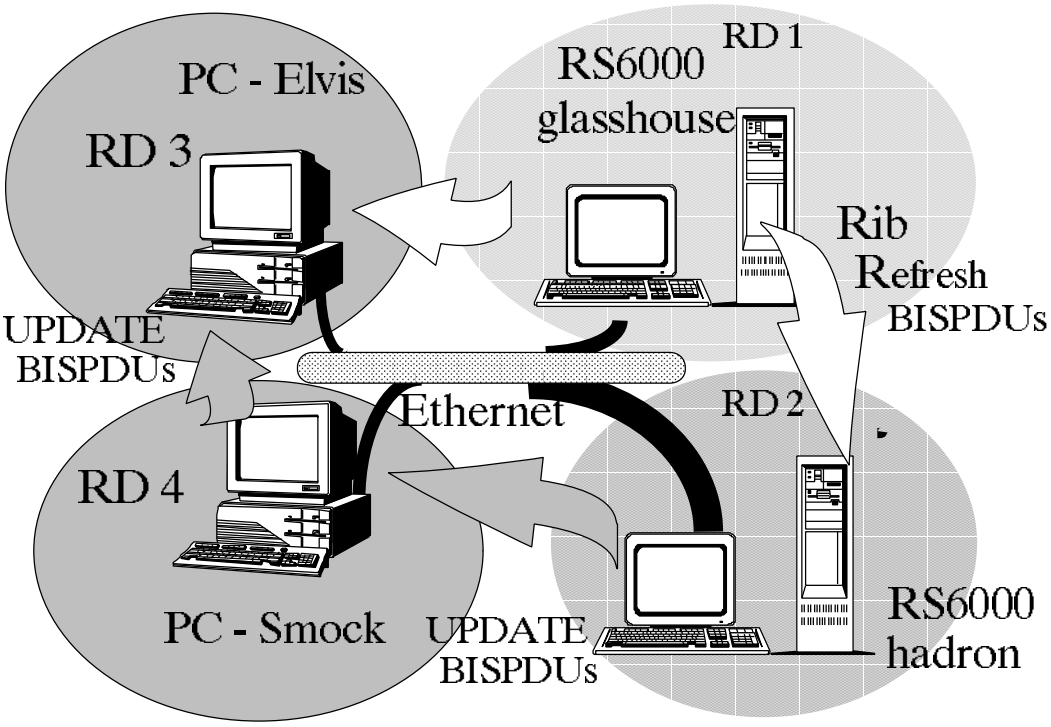

Diagram 4 - BIS Reconfigs and Reinits

Section 6: Software Configuration Management

Merit imports the gated sources into a repository which uses "CVS" to control software updates. This public domain software allows different version of the gated sources to be updated and merged with the MERIT IDRP changes. To gated sources, some NSFNet project sources may be added, such as advance IS-IS code.

Besides the code, the MERIT documents are included in the repository watched by source control.

For every release, a SCM form will be release by MERIT tracking the specific configuration version numbers.

Section 7: Quality Assurance

The SQA plans detail what version of the software is being tested to do what sequence of functions. The SQA form will help track the testing done for each revision to the current software.

Since protocol software must pass correct PDUs, and add routes to the forwarding table so PDUS can be forward, and survive the changing network. Quality Assurance does not differ signifigantly from Software verfication for major releases.

For minor release, some subset of the protocol which has been change will be tested. For Bug fixes, the bug fix will be tested plus only general test of IDRP.

Section 8: Certification Plan

(not applicable for MERIT's implementation of IDRP for gated)

Section 9: Organization of Documents

The following table lists the Merit documents on implementation of IDRP for gated Documents. Each of these documents are under change control (CVS).

Document	Version	Date
Gated Design Document	2.4	7/19/93
Gated Syntax Document	2.0	6/30/93

Software Configuration Management Plan	1.0	7/20/93
Software Quality Assurance Plan	1.0	7/20/93
Configuration Index	1.0	7/20/93
Accomplishment Summary	1.0	7/20/93
Software Configuration Management Form	1.1	7/20/93
Software Quality Assurance Form	1.1	7/20/93
Bug Report Form	1.1	7/20/93
Test Report From	1.1	7/20/93

Associated Documents:

Associated Document	Version	Date
IDRP protocol "Information Processing Systems – Telecommunications and Information Exchange between Systems – Protocol for Exchange of Inter-Domain Routeing Information among Intermediate Systems to support Forwarding of ISO 8473 PDUs"	IS ballot	4/16/93
IDRP protocol (see above title)	DIS ballot	8/3/92
IDRP – IS-IS Interactions " INteracdtions and Routeing Information Exchange between ISO 10589 (ISIS) and ISO 10747 (IDRP)	ISO/IEC JTC 1/SC 6 N 7535	1992-07-21
IDRP for IP	IETF Internet Draft – version 4	March 1993