Inca report storage goals:
• Flexible data content
• Efficient storage/retrieval
• Flexible access to data
• Data security
Report Body Provides Flexible Data Content

<body>
  <performance ID="hpcc">
    <benchmark ID="8">
      <statistics>
        EP-STREAM_Triad_GB_s="2.813"
        G-STREAM_Triad_GB_s="22.505"
        Wall_Mins="74.317"
        EP-DGEMM_GFlop_s="8.936"
        G-HPL_TFlop_s="0.067"
        Random_Ring_Latency_usecs="0.744"
        ProcSpeed_GHz="2.60"
        Cores="8.000"
        HPL_percent="80.639"
        G-Random_Access_GFlop_s="0.057"/
      </statistics>
    </benchmark>
  </performance>
</body>
Hibernate Supports Efficient Data Access

• Hibernate library provides an abstraction layer to DB applications

• Supports PostgreSQL, MySQL, Oracle, HSQLDB, others

• Provides HQL object-oriented SQL dialect

Depot
Depot Schema Reduces Redundancy

- Report bodies often identical; Depot merges them
- Instance contains info that varies--timestamps, resource usage
- Series defines reporter execution; SeriesConfig manipulates execution and output
Depot Provides Flexible Access to Data

- Depot retains history of reporter output
- Protocol supports direct DB access via HQL queries
- Convenience queries provide easy access to common combinations of data
  - Single instance
  - Latest instance of a set of series
  - Instances collected during a specified time period
  - Success/failure history of a set of series
- Special queries report DB schema, suite list
Depot Customization

- Switch underlying database engine
- Add/modify notifier scripts
- Add report filters
Hibernate Supports Multiple DB Engines

- PostgreSQL, MySQL, Oracle, HSQLDB, others
- Differ in optimizations, tools
- Configured via $INCA_DIST/etc/hibernate.properties
- Needs appropriate JDBC driver

# Settings for a local PostgreSQL database.
hibernate.dialect=org.hibernate.dialect.PostgreSQLDialect
hibernate.query.substitutions=yes 'Y', no 'N'
hibernate.connection.driver_class=org.postgresql.Driver
hibernate.connection.url=jdbc:postgresql:test
hibernate.connection.username=test
hibernate.connection.password=

# Settings for a remote MySQL database.
# hibernate.dialect=org.hibernate.dialect.MySQLDialect
# hibernate.connection.driver_class=com.mysql.jdbc.Driver
# hibernate.connection.url=jdbc:mysql://192.168.0.6/test
# hibernate.connection.username=test
# hibernate.connection.password=
Notifiers and Report Filters
Notifiers Report Comparison Success/Failure

• Notifier scripts found in installation $INCA_DIST/sbin/
• EmailNotifier, LogNotifier provided; custom notifiers supported
• Invoked on status change (new/changed failure, new success)
use Cwd qw(abs_path getcwd);
my $name = $ENV{incanickname} || $ENV{incareporter};
my $log =
  "Test 'ENV{incacomparison}' on output of series $name on ".
  "ENV{incaresource} now produces 'ENV{incacomparisonResult}';"
my @timeBits = localtime;
my $timestamp =
  sprintf("%02d:%02d:%02d", $timeBits[2], $timeBits[1], $timeBits[0]);

my $path = abs_path($ARGV[0]);
open(LOG, ">>$path") || die "Unable to open log $path";
print LOG "$timestamp" if defined($timestamp);
print LOG "$log\n";
close(LOG);
Report Filter Clarifies Reports

- Cooperates with Consumer for more accurate display
- Java class in Depot CLASSPATH extends edu.sdsc.inca.depot.util.ReportFilter
- set/get methods for context, report, resource, stderr, sysusage
- Invoked by Depot before incoming report is examined or stored
- Registered by setting inca.depot.reportFilter property in $INCA_DIST/etc/common/inca.properties
Depot Redundancy

Diagram showing the connection between an agent, depot, data consumer, and proxy server. There are two types of connections: default connection and connection during depot failure.
Depot Redundancy

- Warm backup for the primary depot
- Synchronization with peers occurs at startup
- New configuration property

```
# URIs of peer depots
inca.depot.peers=incas://some.other.peer:6324 incas://yet.another.peer:6324
```
# Agenda -- Day 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 - 9:30</td>
<td>Inside the Inca Depot</td>
</tr>
<tr>
<td>9:30 - 10:10</td>
<td>Data display (data consumers)</td>
</tr>
<tr>
<td>10:20 - 11:00</td>
<td>Writing data consumers</td>
</tr>
<tr>
<td>11:00 - 12:00</td>
<td>Hands-on: Data display (data consumers)</td>
</tr>
</tbody>
</table>