asarch review:
Valve Alignment in GlassFish V3

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Motivation

- Both Tomcat and GlassFish V2 allow developers to define and add custom valves
  - Valves may be specified as properties in `domain.xml` and `sun-web.xml`, using their fully-qualified class names
- Different valve interfaces have impacted adoption of, and migration to, GlassFish
  - Example: Terracotta
  - Developers want to be able to have their Tomcat valves run out-of-the-box in GlassFish
  - GlassFish FAQ on valve conversion

Background: Valve architecture

- Filter-like components that allow the web container to intercept the request and response objects before passing them to the application's servlets
  - > Used for access logging, authentication, etc.
- Arranged on Pipeline
  - > Invoked in the order they were added
- Every Container object (Engine, Host, Context, Wrapper) comes configured with a Pipeline
- “Basic” valves (at the end of a Pipeline) invoke Pipeline at the next (lower) level

Valves in Tomcat

- Single invocation point:

```
public void invoke(Request request,
    Response response) {
  // Pre-processing logic here
  // Pass on to the next valve
  getNext().invoke(request, response);
  // Post-processing logic here
}
```

- Every valve invocation adds one stack frame
- Number of stack frames excessive (CR 4665318)

Valves in GlassFish

- Changed Valve interface (but kept its name!) to support flattened invocation:

```
public int invoke(Request request,
    Response response) {
  // Pre-processing logic here
  return INVOKE_NEXT;
      OR
  return END_PIPELINE;
}
public void postInvoke(Request request,
    Response response) {
  //Post-processing logic here
}
```

Valve alignment steps

- Overall webtier goal in GlassFish V3 is to closer align with Tomcat where possible
- Support Tomcat-style valves out-of-the-box, while preserving the performance benefits gained from GlassFish-style valves
- Rename existing `org.apache.catalina.Valve` to `org.glassfish.web.valve.GlassFishValve`, and copy `org.apache.catalina.Valve` from Tomcat

Valve alignment steps (cont.)

- Expose both Tomcat- and GlassFish-style Valve interfaces to developers
- Turn GlassFish container valves into “hybrid” valves that support either invocation style
- Allow Tomcat- and GlassFish-style valves to be added to a Container instance in arbitrary order
- Provide binary compatibility of GlassFish-style valves built against the previous `org.apache.catalina.Valve` interface in GlassFish

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