

Sarana

- **Space Aware** and **Resource Aware Network Architecture**
- Targets dynamic/ad hoc networks
- Sensitive to physical location
- Sensitive to available resource levels

Amber Alert



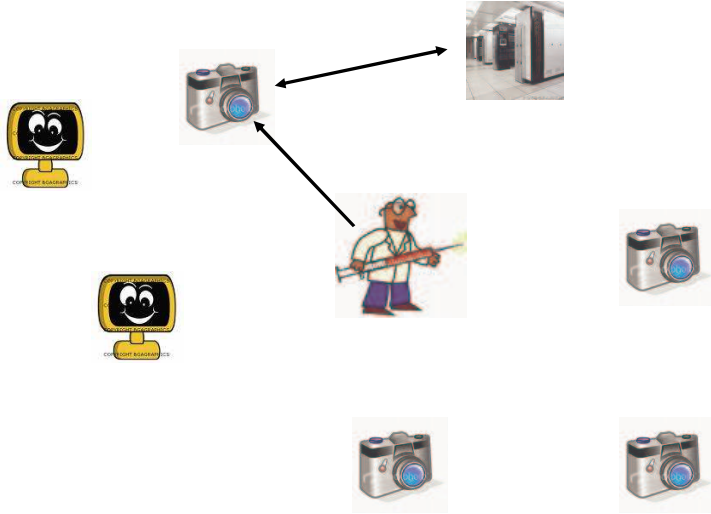
Amber Alert



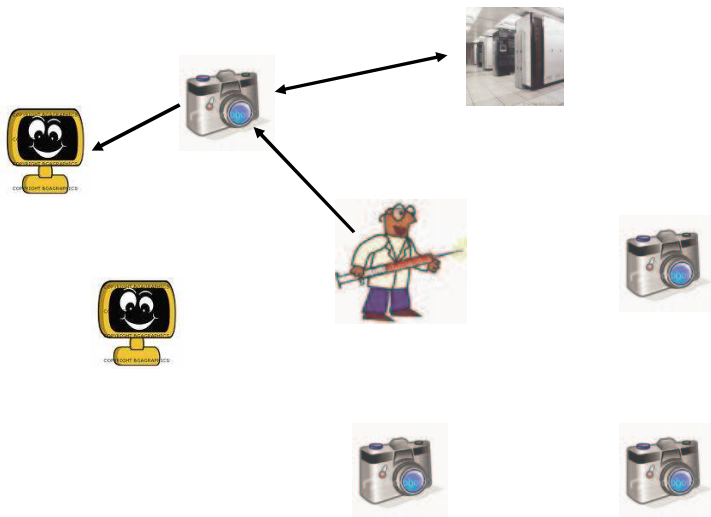
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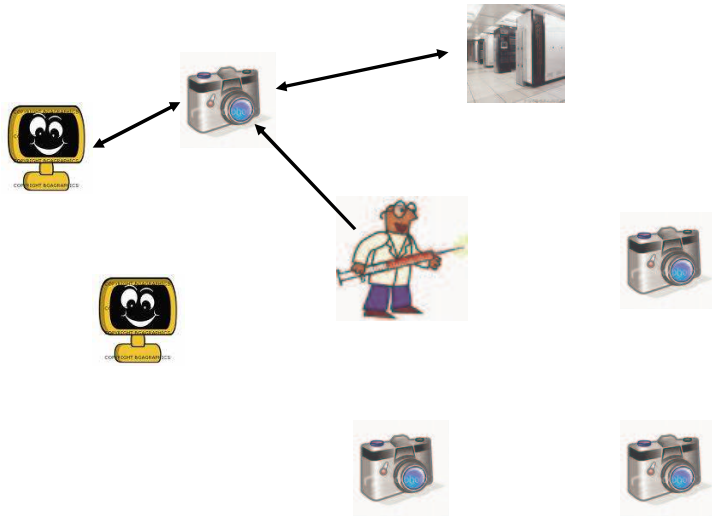
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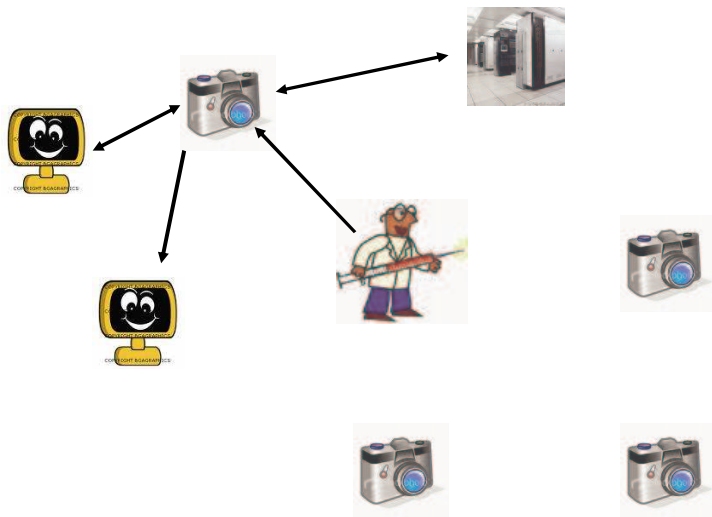
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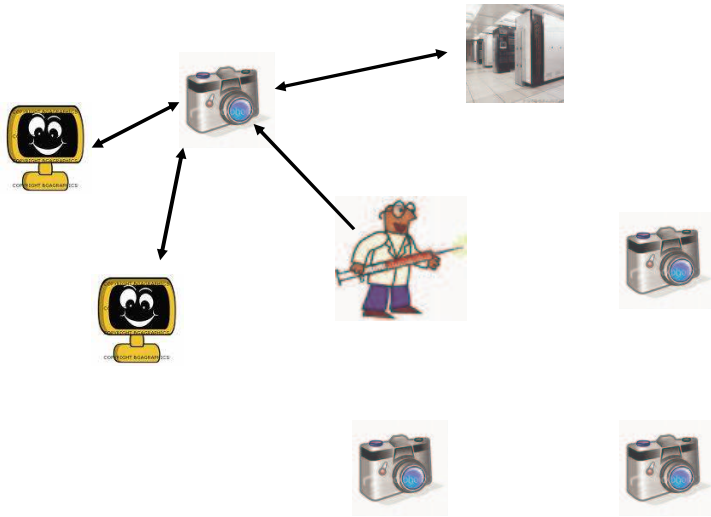
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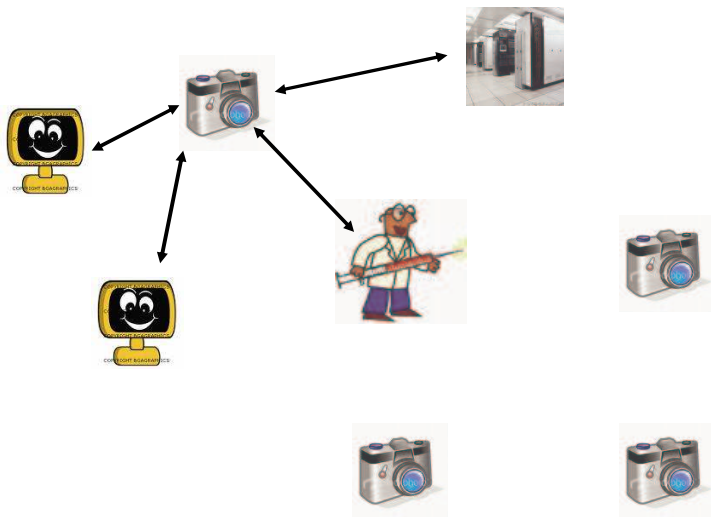
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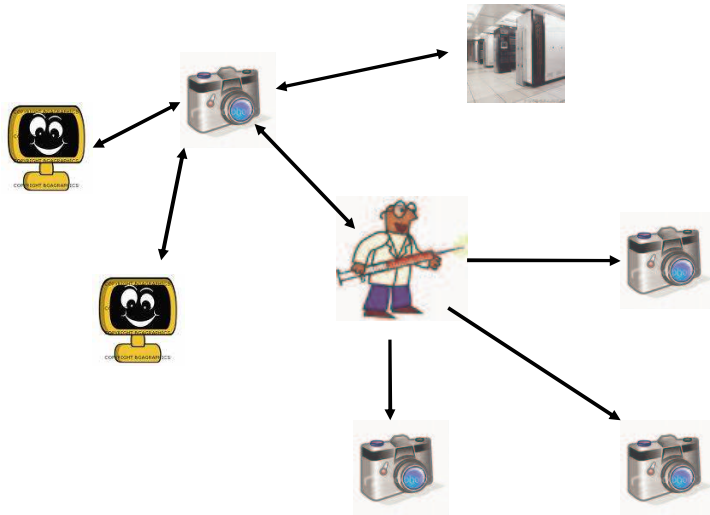
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```
Collection c = something;
sumreduction int ok = 0;
visiteach camera : cameraSpace {
  Picture p = camera.takePicture();
  visitone analyzer : analysisSpace {
    ok += analyzer.accepts(p);
  }
}
if (ok > 0) {
  visiteach monitor : displaySpace {
    monitor.display(p);
    c.add(something);
  }
}
obtain max (c.size());
```

Quality of Result (QoR)

- Cost model: use of resources costs “credits”
- QoR metric: specified by programmer
- Incremental execution (different heuristics available)
- Cost feedback to injection node

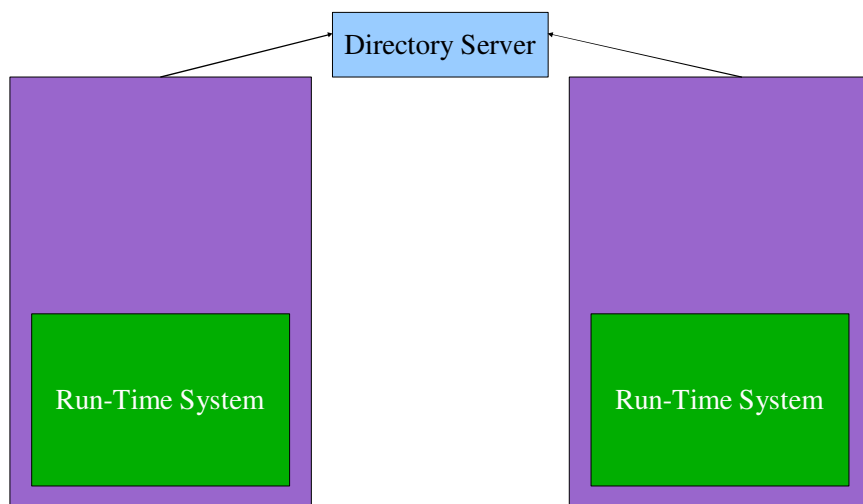
Compiler and Libraries

- Compiler:
 - Task partitioning
 - Translation to library calls
- Application library:
 - Scheduler
 - Iteration / incremental execution
 - Scatter
 - Code distribution

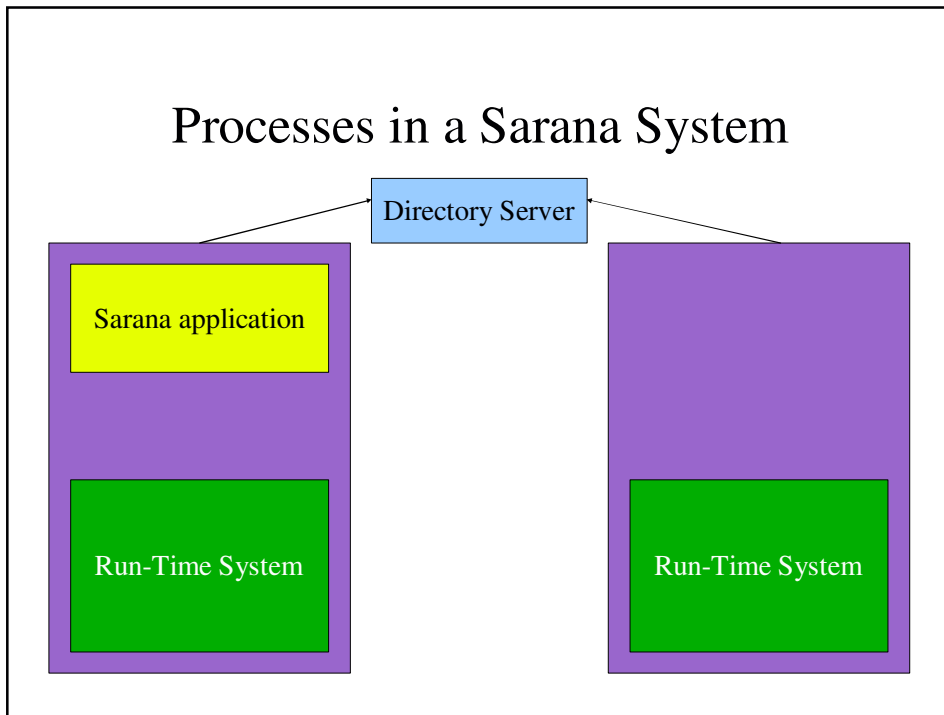
Processes in a Sarana System

- Directory server
- Run-Time System (RTS) on every node
- Sarana application
- Spawned processes

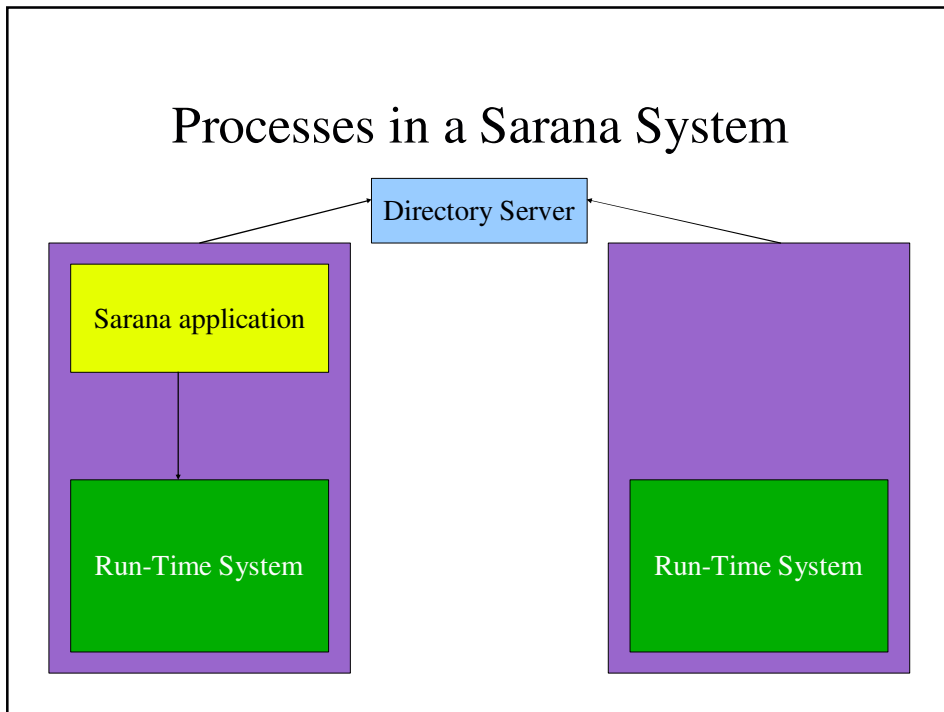
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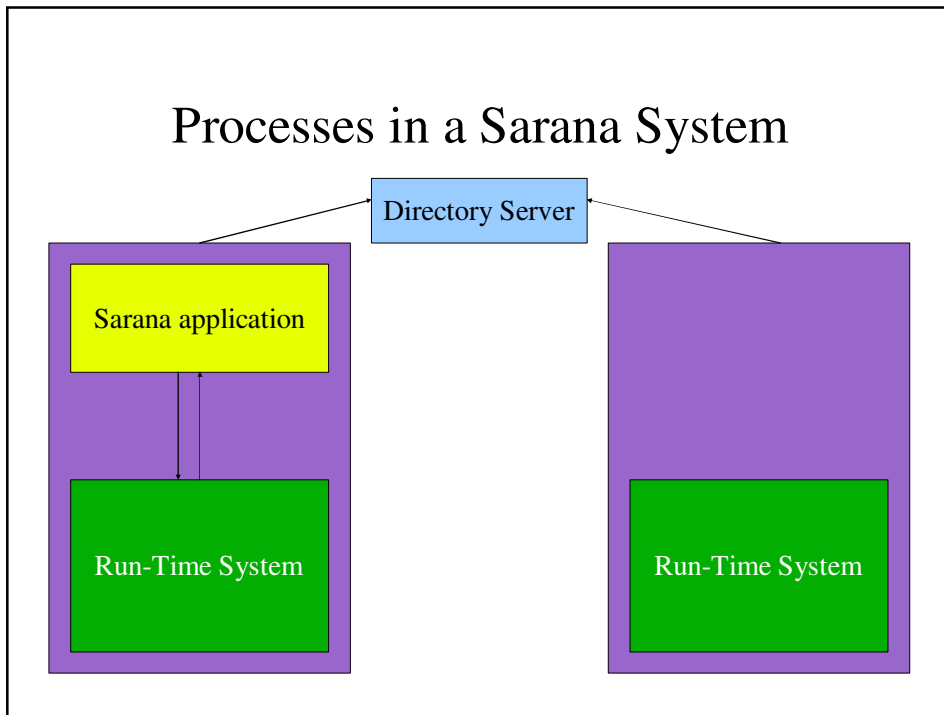
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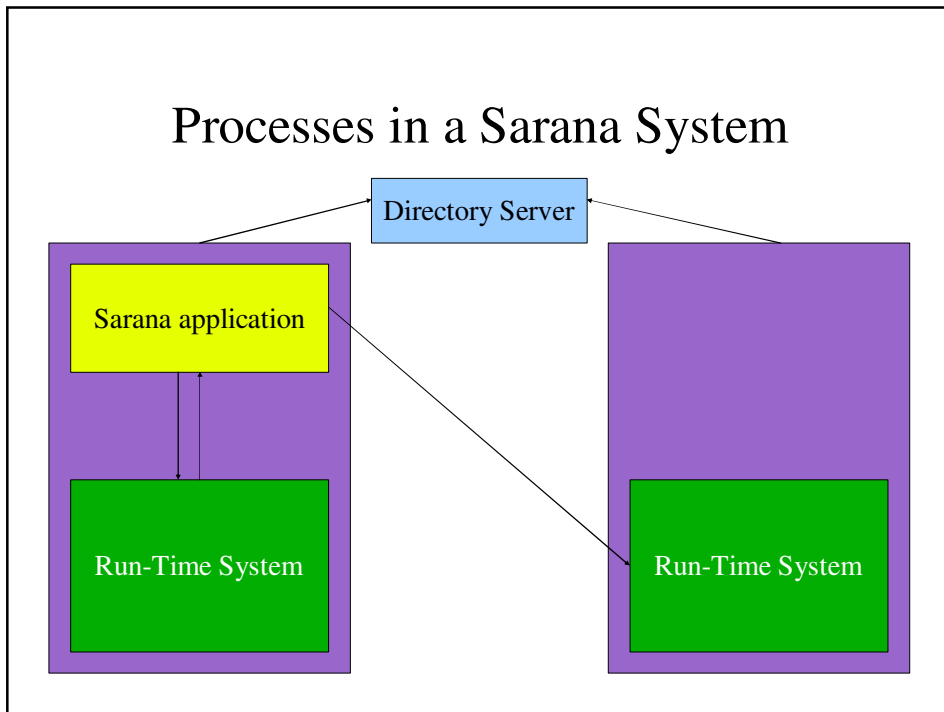
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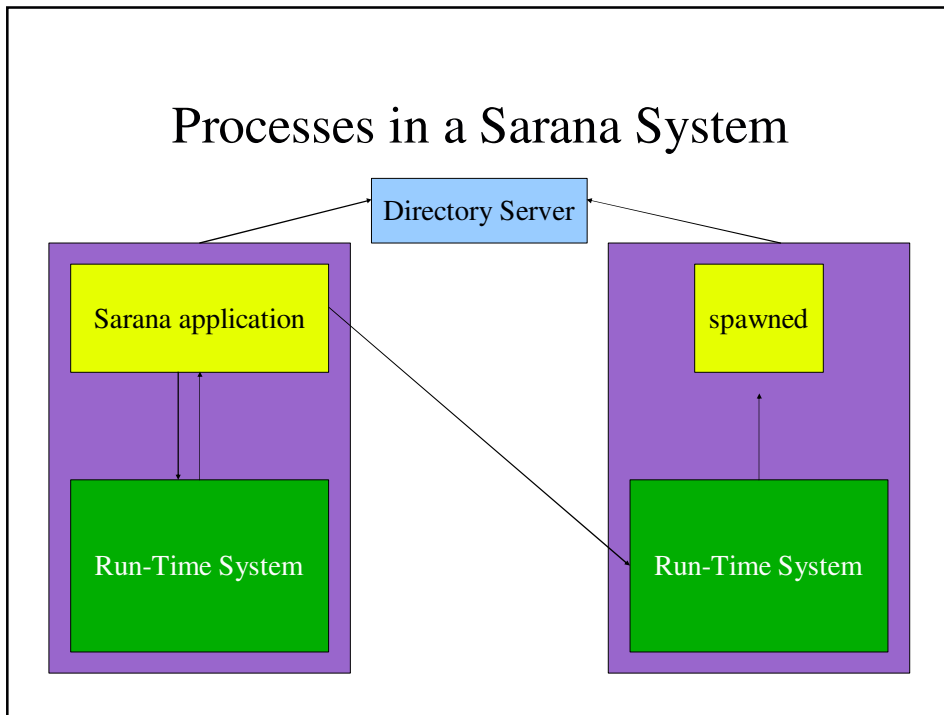
Processes in a Sarana System



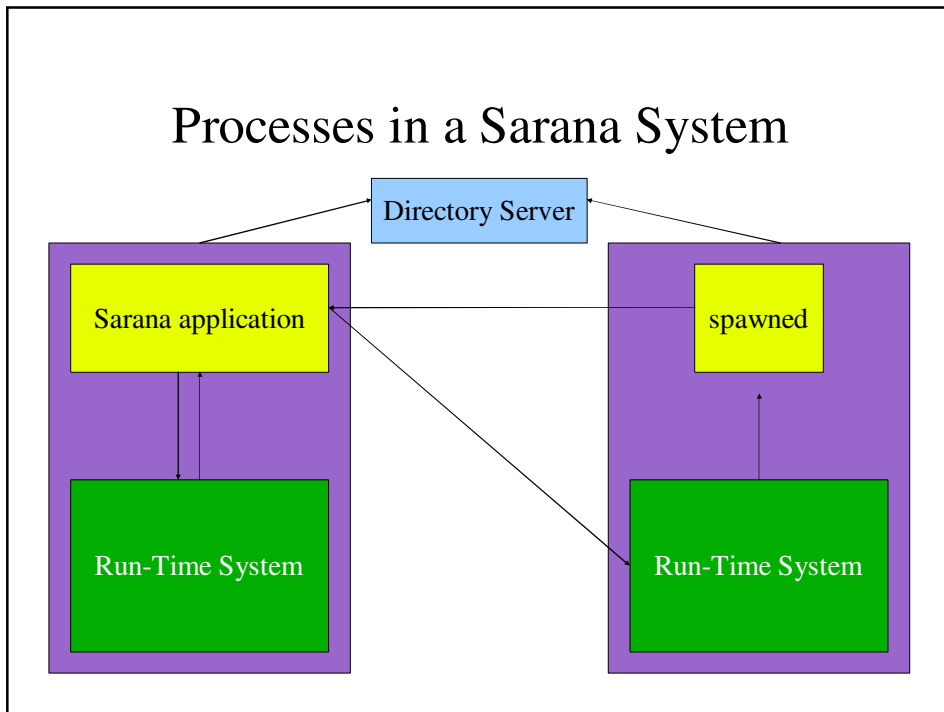
Processes in a Sarana System



Processes in a Sarana System



Processes in a Sarana System



Run-Time System

- Directory Client / Yellow Pages
- Resource Monitor
- Policy Controller
- Port Authority
- Process Manager
- Code Distribution Manager
- IPC Handler