Are you really confident that you are getting the very best from your verification resources?

**Abstract**

Getting the very best from your verification resources requires a regression system that understands the verification process and is tightly integrated with Workload Management and Distributed Resource Management software. Both requirements depend on visibility into available software and hardware resources, and by combining their strengths, users can massively improve productivity by reducing unnecessary verification cycles.

**Introduction**

Smart combination of the grid and regression management systems to ensure that every verification cycle is a valid cycle requires:

- Best in class regression and grid systems
- Communication between the systems
- Visibility into metrics to allow measurement of both verification and resource effectiveness

**Regression System**

Twin demands increased quality and shortened design cycles put pressure on IP and SoC houses to leverage automation throughout the design and verification processes. Using a purpose-built regression system can give verification engineers maximum productivity while reducing the maintenance burden. User productivity can be boosted in most aspects of verification management including capacity, performance, resource usage, turnaround time, preparation, maintenance, results and coverage analysis.

- **Structured Design**
  - Separates capture from control
  - Layered providing expandibility
- **Improved Throughput**
  - Resource balancing
  - Actions Optimization
- **Improved Turn-around**
  - Actionable data
  - Communication
  - Maintenance

**Workload and Distributed Resource Management**

Software for Workload Management (WLM) and Distributed Resource Management (DRM) has become a fundamental building block of compute farms or grids and large-scale technical computing data centers. It is as crucial as the networking infrastructure or file sharing services and provides a similar type of service (and potential bottleneck) to data centers that a conveyor provides to the assembly line in an industrial manufacturing factory: if it slows down, the production gets severely impeded, and if it stops, then everything comes to a screeching halt.

- **Flexible**
  - Meet throughput requirements and keep utilization near the optimum
  - Avoiding costly downtimes
- **Responsive and Scalable**
  - Adapt to the changing infrastructure complexities and allow for implementation of policies reflecting the operational goals of an organization
  - Layered providing expandibility

**Integration Between Regressions And Execution**

The regression system separates execution from capture with a particular method describing transparent ways to execute the actions or jobs. The ‘qsub’ command is the executable used to submit actions to the grid and by setting the ‘maxarray’ attribute to more than one will cause the regression system to pack the actions into arrays for submission to the grid.

**Managing Software Licensing**

Organizations struggle to get a grip on license utilization. Many organizations have subsidiaries across the world, each with their own pool of licensed software. Asking questions like “Where is excess capacity?” or “Where is insatiable demand?” is a key benefit using license orchestration software in conjunction with the WLM/DRM system.

- **Dependable**
  - Avoiding costly downtimes
- **Responsive and Scalable**
  - Meet throughput requirements and keep utilization near the optimum
- **Flexible**
  - Adapt to the changing infrastructure complexities and allow for implementation of policies reflecting the operational goals of an organization

**Monitoring Metrics**

Having pertinent reporting and monitoring tooling entails three aspects: gathering comprehensive metrics, providing analytics to distil useful reports from that data, and having a user interface allowing for easy navigation.

**Results**

This paper has detailed how this can make massive improvements to the productivity and throughput of regressions with some real examples shown in the table below.