

# Virtana's Approach to AIOps

Today's IT business applications are complex and deployed across hybrid infrastructure. They can span multiple clouds at hyperscale making it impossible for human minds to contextualize and correlate all the potential causes of application slowdowns. Infrastructure issues must be resolved in near real-time to avoid impacting the business and its customers. This is where Artificial Intelligence for IT Operations (AIOps) helps teams deal with the exponentially increasing scale of infrastructure related big data.

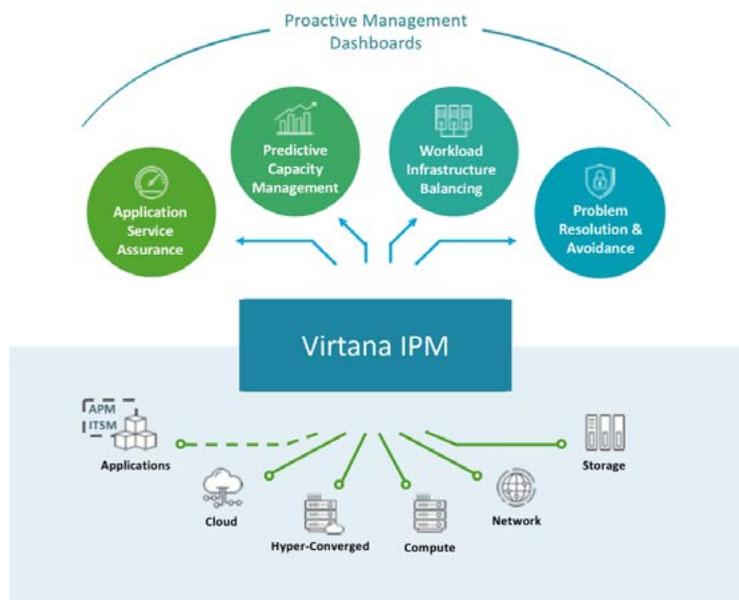
## The Brains Behind Virtana Infrastructure Performance Management (IPM)

Virtana IPM is the AI-powered intelligence that underpins the industry leading IPM AIOps engine. It empowers you to take a proactive approach to analyzing health, performance and capacity data within the context of the applications it serves.

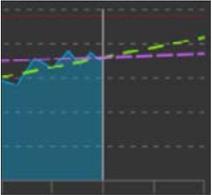
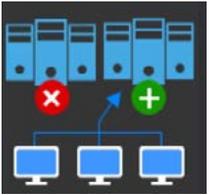
Virtana IPM enables you to avert infrastructure issues by providing actionable recommendations that assure SLAs, capacity utilization and enable optimal balancing of infrastructure workloads before they impact business-critical applications.



Virtana IPM delivers the critical management capabilities, based on AI, that you need to proactively manage your hybrid infrastructure in service of your applications regardless of where they are deployed.

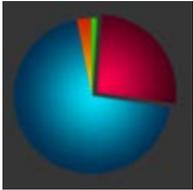
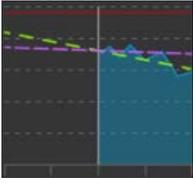
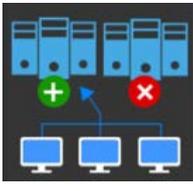
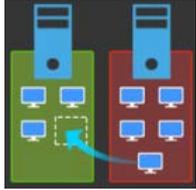
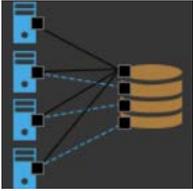




Discovery & Mapping	Capacity Planning	Workload Balancing	Anomaly Detection
 <p>Understands where the applications are deployed, their business importance, how they utilize infrastructure, real-time service levels, and changes.</p>	 <p>Plan future application workload deployment. Proactively measure capacity usage, and predict when your servers, storage and SAN will reach exhaustion.</p>	 <p>Proactively and continuously balance workloads across your virtualized servers, HBAs and storage ports. Analyze workloads and perform what- if analysis in the lab.</p>	 <p>Automatically eliminates noisy alarms, correlates and ranks potential root causes, tracks resolution status, and makes actionable recommendations for problem resolution.</p>

Key Features	Key Features	Key Features	Key Features
<ul style="list-style-type: none"> <li>• Proactive app and infrastructure dashboards</li> <li>• Application impact Seasonal behavior analysis</li> <li>• Application path optimization</li> <li>• Application-tier based policies</li> <li>• Application discovery and mapping</li> <li>• APM and CMD Bintegration</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity and utilization dashboards</li> <li>• Capacity forecasting for compute, network and storage</li> <li>• Predictive time-to-zero analysis for existing capacity</li> <li>• Plan future application workload deployments based on existing workload profiles</li> </ul>	<ul style="list-style-type: none"> <li>• Proactive workload balancing recommendations</li> <li>• Workload analysis</li> <li>• VM coordination and placement</li> <li>• Network path &amp; queue optimization</li> <li>• Storage Array front-end port balancing</li> </ul>	<ul style="list-style-type: none"> <li>• Automatic alarm noise reduction</li> <li>• Anomaly detection</li> <li>• Trend and pattern matching</li> <li>• Cross-domain correlation</li> <li>• Automated and guided analytic runbook-based investigations</li> <li>• Collaborative discussions and status tracking</li> </ul>



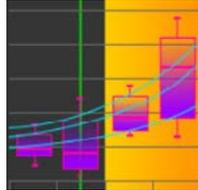
Application Assurance		<b>Analyze Seasonal Behavior and Season Trends</b> <ul style="list-style-type: none"> <li>Analyzes workload behavior to identify seasonal behavior</li> <li>Identifies abnormal trends in workload behavior</li> <li>Predicts resource needs over time for a user-selected entity and metrics based on historical patterns</li> <li>Alerts based on deviation from the observed behavior</li> </ul>
		<b>Optimize Application Paths with Balance Finder</b> <ul style="list-style-type: none"> <li>Analyzes data traffic and throughput of selected hosts to determine if the traffic is balanced</li> <li>Assures and optimizes host data multi-pathing</li> <li>Verifies HBA settings and recommends changes to multipath configurations</li> </ul>
Predictive Capacity Management		<b>Predict Capacity needs with the Capacity Forecaster</b> <ul style="list-style-type: none"> <li>Predicts time to capacity exhaustion for servers, VMs, networks and storage</li> <li>Reviews historical data to calibrate long-term and short-term usage trends to account for dynamic infrastructures</li> </ul>
		<b>Plan App Workloads with VM Deployment Advisor</b> <ul style="list-style-type: none"> <li>Identifies the optimal cluster deployment for your new VMs for VMware, IBM or Microsoft</li> <li>Allows new application workloads to be templated against existing similar workloads</li> </ul>
Workload Infrastructure Balancing		<b>Optimize Placement with VM Coordinator</b> <ul style="list-style-type: none"> <li>Proactively assesses your virtualized environment resource balancing</li> <li>Analyzes long term historical data to identify optimal moves of VMs in a cluster across CPU, memory and storage</li> <li>Avoids vMotion sickness by optimally re-balancing clusters using a revolutionary approach that tests every permutation and its impact</li> </ul>
		<b>Balance Load Across Storage Ports with Storage Port Balancer</b> <ul style="list-style-type: none"> <li>Assesses your storage array front-end ports and provides optimal re-balancing based on application workload importance and workload attributes such as block size</li> <li>Identifies overloaded storage ports &amp; makes rebalancing recommendations, using intelligent decision-making to maintain parity, redundancy, &amp; data groups</li> </ul>

## Application Assurance



### Recreate Workloads in the Lab with Workload Analysis

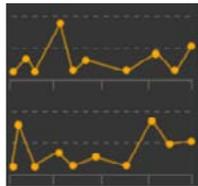
- Analyzes and captures an application or host storage workloads for replay in the lab using Virtana WorkloadWisdom
- Provides realistic workload simulations to replay in a lab to assess and resolve issues or to test new configurations



### Optimize HBA Queues with Queue Solver

- Analyzes your HBA interfaces and workloads read/write latency, to determine and recommend the optimal queue depth

## Predictive Capacity Management



### Detect and Prevent Anomalies with Event Advisor

- Analyzes and structures events for accelerated problem remediation. Provides a prioritized list of events that impact infrastructure



### Correlate Across Domains with Trend Matcher

Correlates performance issues to the infrastructure responsible using trend analysis, pattern matching and app- centric topology

- Looks for specific issues in the infrastructure based on pre-defined or user created scenarios

## Why you should be using Virtana IPM to power AIOps in your organization

- Industry leading proactive and app-centric Hybrid IT Infrastructure management
- Proactive, Real-time monitoring and analytics from the data center to the cloud
- Provides the machine intelligence and expert systems needed to make your AIOps initiatives successful

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