# SOLARWINDS ORION PLATFORM SCALABILITY

SolarWinds provides enterprise-class infrastructure management software that has been designed to help manage and monitor data centers and IT infrastructure. With products for network and traffic monitoring, network configuration, and server and application monitoring, the modular architecture scales to meet the end-to-end monitoring needs of enterprises of all sizes.

The SolarWinds® Orion® Platform provides common services such as alerting, reporting, intuitive dashboards, and charts. Orion enables real-time performance monitoring and management of physical and virtual infrastructure in a single pane of glass and helps improve IT operational efficiency, reduce costs, and increase IT availability.
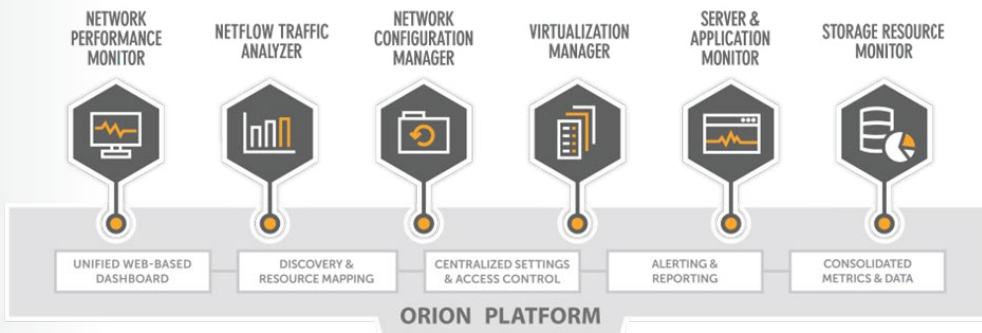

Three Primary Variables that Affect Orion Scalability

· Infrastructure size: The most important factor is the number of monitored elements (where an element is defined as a single, identifiable node, interface, or volume), and the number of servers and applications.

· Polling frequency: This defines the interval in which the monitoring system polls for information. For example, if you are collecting statistics every few minutes, the system will have to work harder and system requirements will increase.

· Number of simultaneous users accessing the monitoring system: This directly impacts system performance.

Growing a Single SolarWinds Instance with Scalability Engines

Most deployments are based on a single Orion Platform server that monitors the infrastructure and applications. As your IT environment grows, you may find that you are no longer able to monitor everything you would like at your desired polling frequency. In this case, you can deploy a scalability engine to reduce the load on the main polling engine. The data polled by the scalability engine will be stored in the core database along with the data from the main polling engine.
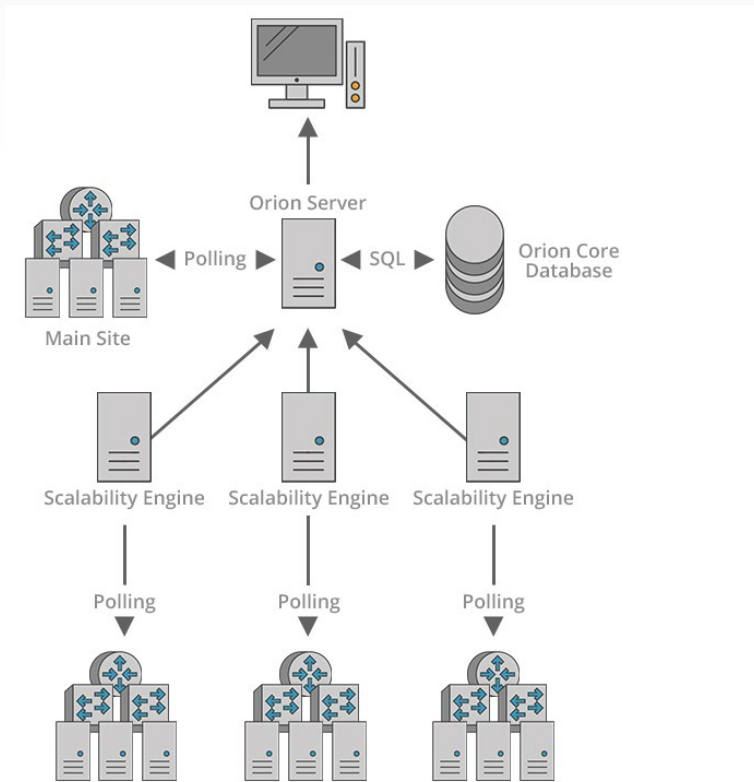
Scalability to Support User Growth

The number of simultaneous users accessing the web console can have a direct impact on the performance of the system. If you have more than 20 users accessing the web console simultaneously, then SolarWinds recommends the installation of an additional web server that will load balance the number of concurrent users.
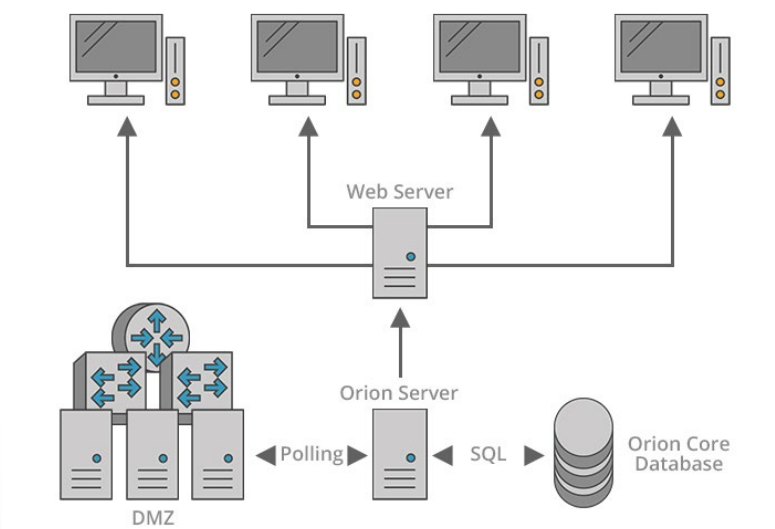
Deployment Considerations

The Orion Platform architecture provides the flexibility for centralized or distributed monitoring.

Centralized Deployment

In a typical centralized deployment, the server that the Orion Platform is installed on polls all data and then stores it centrally on the Orion database server. Both the primary server that the Orion Platform is installed on and the Orion database server are in the primary region. Regional operators in each region must log into the Orion web console in the primary region where the Orion Platform is installed to view data. Additional web servers are available and may be installed in secondary regions.
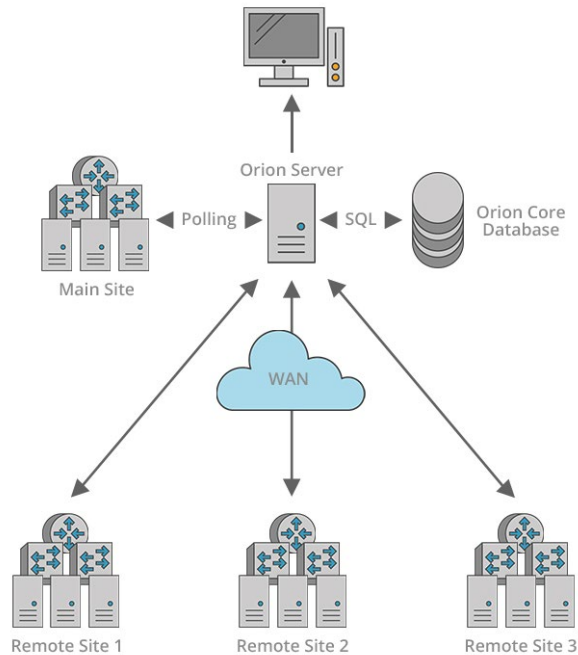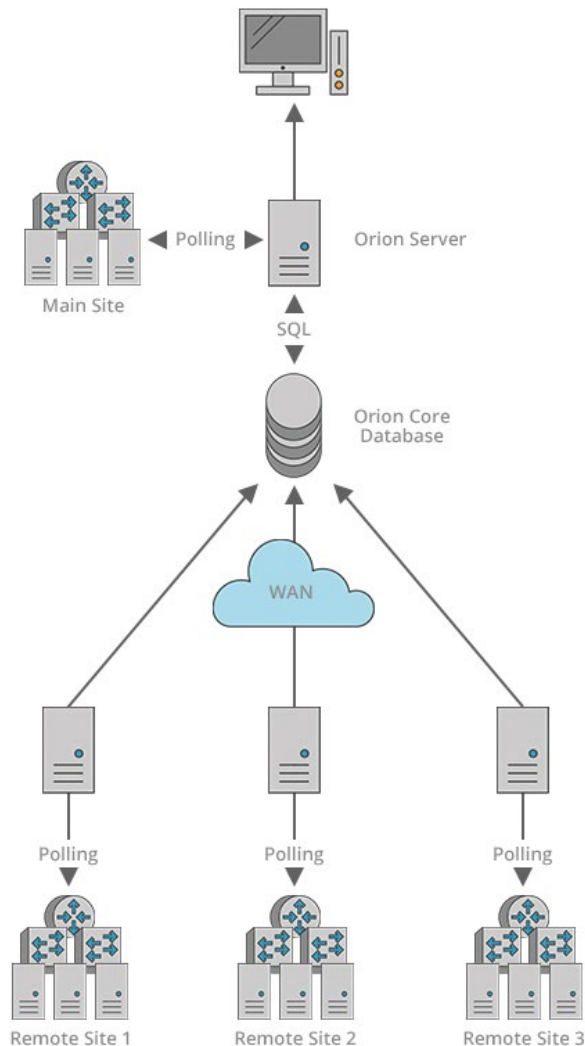

A reliable static connection is required between the primary region and all monitoring regions. This connection is continually transmitting monitoring data. The quantity of bandwidth consumed will depend on many factors, including the type and number of SolarWinds Orion Platform products that are installed, and the types and quantity of monitored elements.

In a centralized deployment, all monitoring, such as measurements of node response time, are calculated from the perspective of the primary server the Orion Platform is installed on. For example, the response time for a monitored node in Remote Site 2 will be equal to the round trip time from the primary server the Orion Platform is installed on to the monitored node.

Centralized Deployment with Remote Pollers

This is similar to the previous scalability scenario with the difference being that the server the Orion Platform is installed on is deployed in the primary location, and scalability engines are deployed in the geographically distributed regions. This type of deployment helps to cover monitoring a distributed network with just a single SolarWinds Orion Platform instance.

Scalability engines poll data locally in each region, and the polled data is then stored centrally on the Orion database server in the primary region. Regional operators in each region log into the Orion web console in the primary region where the Orion Platform is installed to view data.

Additional web servers are available and may be installed in secondary regions. Using an additional web server, a regional operator can then log into a local web console to view all network data.

A reliable static connection is required between the primary region and all monitoring regions. This connection is continually transmitting Microsoft® SQL data to the server the Orion Platform is installed on. This connection also carries communications between the additional polling engines and the primary Orion server. The latency (RTT) between each additional polling engine and the database server should be below 200ms.

Each polling engine uses Microsoft® Message Queuing (MSMQ) to cache data locally on the additional polling engine servers in the event of a broken connection to the Orion Platform database server. The amount of data
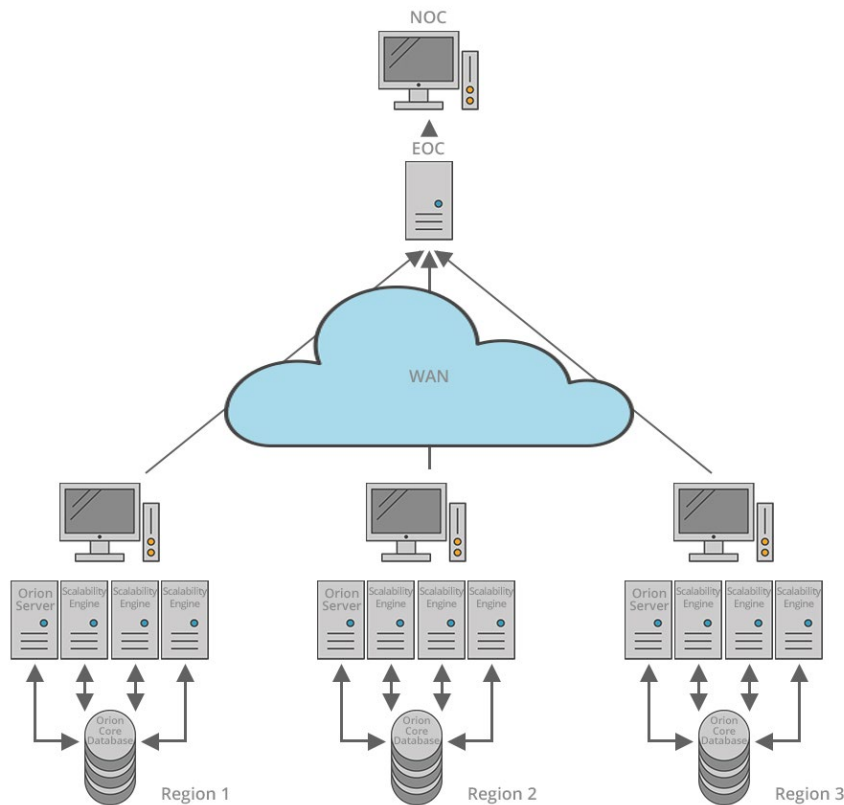
that may be cached depends on the amount of disk space available on the scalability engine server. A general guideline is that up to one hour of data may be cached. Once the connection to the database is restored, the Orion Platform database will be updated with the locally cached data.

In a centralized deployment with remote scalability engines, all monitoring, such as measurements of node response time, are calculated from the perspective of the regional polling engine. For example, the response time for a monitored node in Remote Site 2 will be equal to the round trip time from the Remote Site 2 scalability engine to the monitored node.

Monitoring Geographically Distributed Environments with Multiple SolarWinds Instances

It's possible to have multiple instances of SolarWinds deployed in different geographical locations and rolled up into a single view. Though the polling operations and database storage of each instance would be different, SolarWinds provides a solution to centralize and simplify data management in a single consolidate view with SolarWinds Enterprise Operations Console (EOC).

This type of deployment option is well suited to organizations with multiple regions or sites where the quantity of nodes to be monitored in each region would warrant both localized data collection and storage. It works well when there are regional teams responsible for their own environments, and when regional teams need autonomy over their monitoring platform, preferring not to share a single Orion Platform instance. This option gives regional operators autonomy as well as the ability to have different modules and license sizes installed in each region to match individual requirements. While the systems are segregated between regions, all data can still be accessed from the centrally located SolarWinds EOC.

What is SolarWinds Enterprise Operations Console?

SolarWinds EOC delivers a command center for monitoring your enterprise-wide network health, providing a single interactive screen that aggregates data from multiple SolarWinds Orion-based deployments. This simplifies the management of large, distributed networks by providing a unified view into the performance of your network, and also accelerates your ability to identify and resolve issues.

SolarWinds EOC securely collects Orion Platform-based server data directly from each of the regional Orion servers. WAN performance is not impacted because Orion servers poll network devices locally and EOC only periodically pulls updates from each Orion Platform-based server database.

This WAN-optimized architecture ensures that WAN traffic is minimized and that, even if the WAN link temporarily goes down, regional Orion-based servers will continue polling without disruption. Once the WAN link is restored, SolarWinds Enterprise Operations Console automatically reconnects to the Orion-based servers, helping to ensure that you never lose important information about network health.

Deployment over Secure DMZ Networks

The Orion Platform can be deployed over secure DMZ networks allowing users outside the firewall to monitor devices within the DMZ.
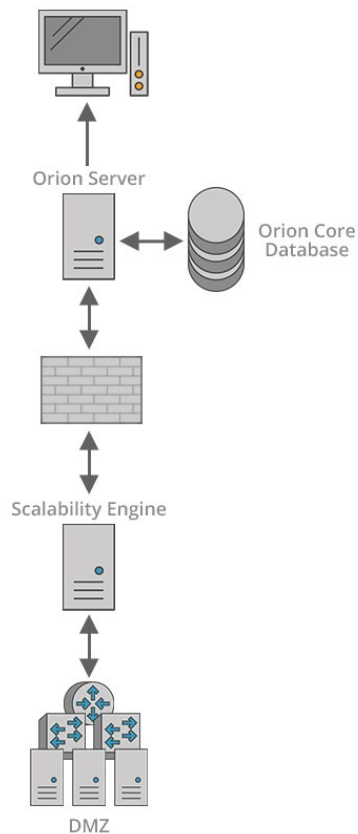

High Availability and Fault Tolerant Monitoring Environments

Every network should have a fault tolerance and failover plan for its monitoring system deployment. It's possible that your monitoring installation can fail due to faulty hardware on the server, link issues, interrupted power supply, etc. To help ensure that the monitoring system is always available, it's important to lay out a failover mechanism that will switch over the monitoring system operation to secondary server if the primary server should fail. Recovery time objective (RTO) is the accepted time of experiencing monitoring system downtime before it's switched over to another instance. If your impact analysis determines that your production system can comfortably withstand 30 minutes of downtime, then 30 minutes becomes your RTO. Everything you do by way of keeping your systems operational implicitly occurs against that RTO.

The shorter the RTO, the quicker the monitoring system will be available after failover. Since very few systems are capable of an entirely automatic response to an operational issue, recovery strategy most likely involves IT engineers performing triage based on alerts. SolarWinds Orion Platform can be switched over to another failover server using SolarWinds **High Availability** (HA).
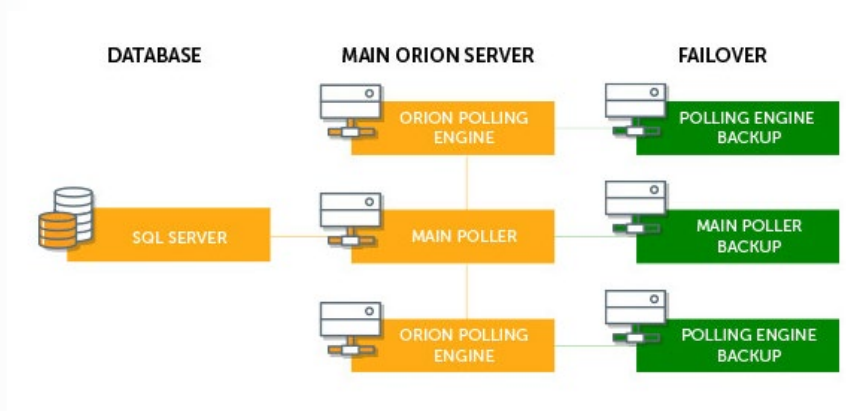
About SolarWinds

SolarWinds (NYSE: SWI) provides powerful and affordable IT management software to customers worldwide. Focused exclusively on IT pros, we strive to eliminate the complexity in IT management software that many have been forced to accept from traditional enterprise software vendors. SolarWinds delivers on this commitment with unexpected simplicity through products that are easy to find, buy, use, and maintain, while providing the power to address any IT management problem on any scale. Our solutions are rooted in our deep connection to our user base, which interacts in our online community, THWACK®, to solve problems, share technology and best practices, and directly participate in our product development process. Learn more at http://www.solarwinds.com

What is SolarWinds High Availabilty?

SolarWinds HA monitors the health of the server hosting the Orion Platform to help ensure that you never lose visibility. If something should happen to your primary Orion Platform server, HA automatically fails over to a remote server. The passive failover server assumes the full identity of the primary server and assumes all monitoring, alerting, reporting, and data collection. HA's switchover is an automatic, seamless, and transparent process that helps ensure that data is collected continuously.