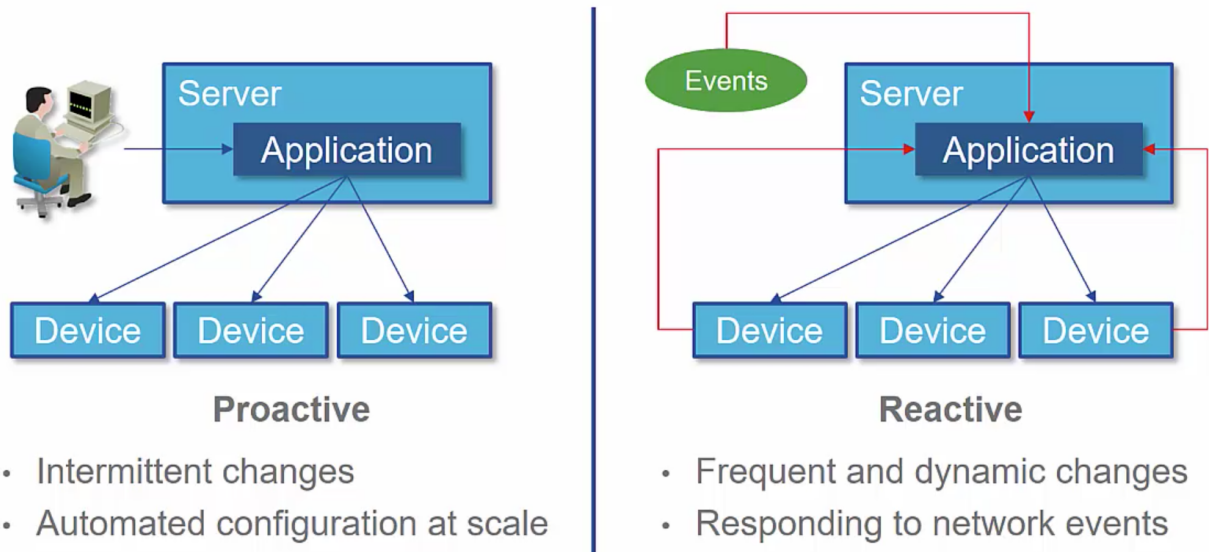


Proactive versus Reactive Applications



Proactive versus Reactive Applications

Your application will need to be built differently, depending on your desire for it to operate proactively, or reactively. Consider the following:

Proactive applications have the following characteristics and considerations:

Proactive applications are typically used to automate configuration changes. They set configuration parameters for devices at relatively infrequent intervals. The intention is to programmatically implement planned network changes, rather than attempting to respond to network changes or traffic events.

Proactive applications are primarily targeted at implementing policy across the network. Rather than requiring an administrator to configure individual settings on every device, a programmatic solution would make policy-based changes across the network in a consistent and reliable manner.

The term policy in this sense can be advanced (user access rights, prioritization of traffic, and so on); or it can be simple (consistent configuration policies, software update policies).

Proactive applications are less sensitive to issues such as:

Scalability: Configuration changes are typically scheduled. Change control windows can be increased if necessary to handle more devices.

Latency: Issues that are related to timing or delay can be accounted for a proactive network application.

High availability: If proactive network application goes down, network operation is not typically impacted. The only impact is that the next infrequent policy change cannot be performed until the application is restored.

Reactive applications have the following characteristics and considerations:

Network configuration changes are made dynamically, based on network stimuli or events.

Reactive applications take action based on changes taking place in the network. Examples include changing next-hop routing behavior for specific traffic, or dynamically implementing QoS policies to account for changes in traffic patterns.

Reactive applications are more sensitive to issues such as:

Scalability: Large, immediate configuration changes based on a critical event will be subject to performance issues based on scale, such as the number of devices being managed by the application. Application design, and the possible need for application clustering or teaming, are important considerations for reactive applications.

Latency: These event-driven changes will to some degree be sensitive to delay, either in processing the event and determining the appropriate action, or in actually implementing the changes on the devices. The design of the application and the resources (CPU, network) dedicated to its successful operation, are important concerns.

High availability: If the operation of the network depends on a timely response to network changes there may be issues if a reactive application fails. Therefore some type of high availability strategy may be required, whether through sophisticated HA technology, or via some simple active-passive technique.