

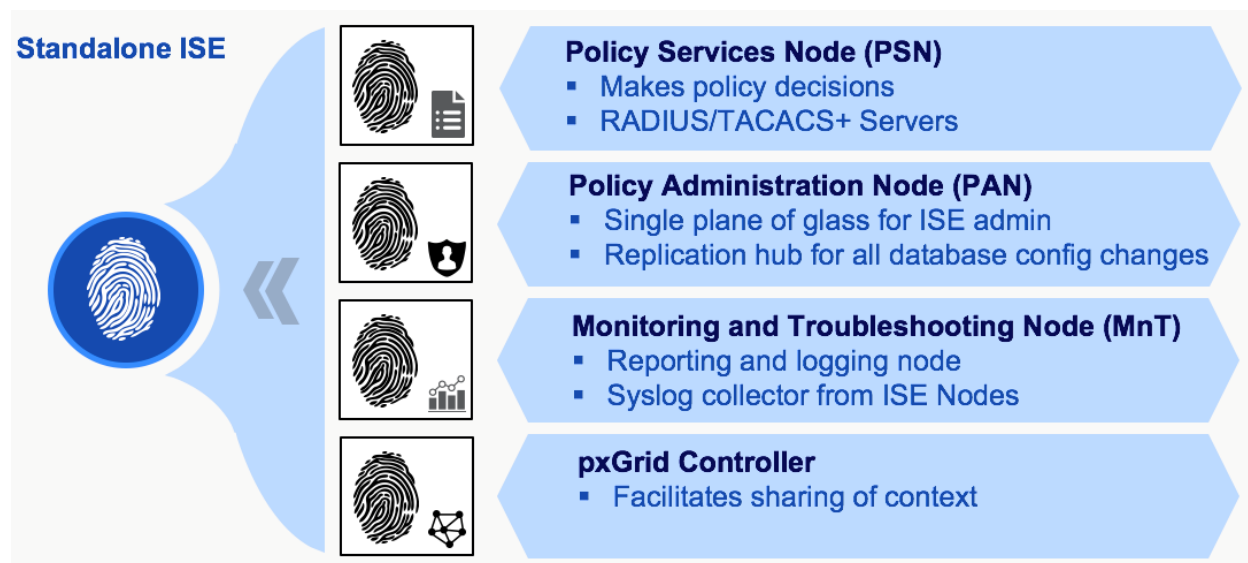
ISE Deployment Model:

Cisco has prescribed few different deployment models that are supported; Small, Medium, and Large. As you can guess from the names, the scale requirements of your environment will be the most important factor when determining which Cisco ISE deployment model is best for you. A deployment that has a single Cisco ISE node is called a standalone deployment. This node runs the Administration, Policy Service, and Monitoring personas. A deployment that has more than one Cisco ISE node is called a distributed deployment. To support failover and to improve performance, you can set up a deployment with multiple Cisco ISE nodes in a distributed fashion.

Deployment Model	Number of ISE Nodes	Maximum RADIUS Sessions
Standalone	Minimum 1 – Maximum 1	20,000
Small	Minimum 1 - Maximum 2	20,000
Medium	Minimum 3 - Maximum 7	20,000
Large	Minimum 5 - Maximum 54	500,000

Standalone Deployment:

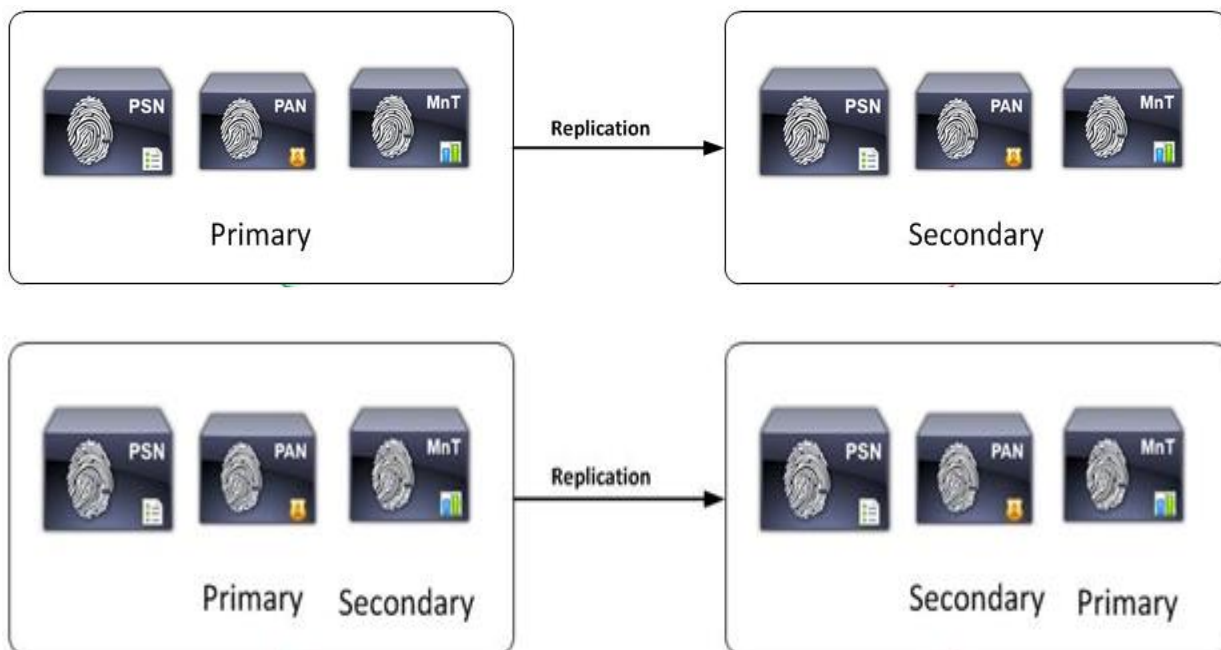
Standalone Deployment is built on one ISE Node. Standalone mode is also called as Single Node Deployment. In this deployment, all ISE personas reside on a single appliance. All the personas are available in Single Physical or Virtual ISE device. Single Cisco ISE device is responsible for performing all the functions. Standalone Deployment method is no redundancy available. If ISE loses network connectivity authentication/authorization will not work. If ISE device loses power connectivity authentication/authorization will not work. Maximum number of device supported around 10000 depends upon the device. This method is not used commonly as it does not have redundancy. This deployment is recommended only when testing a solution in a lab.



Small Deployment:

The smallest distributed ISE deployment consists of two Cisco ISE nodes, both of which run all of the three required ISE personas with one node functioning as the primary. The primary node provides all the configuration, authentication and policy functions and the secondary node functions as a backup. The secondary supports the primary in the event of a loss of connectivity between the network devices and the primary. In short, 2 nodes in the same Data Center, all nodes run all personas, all nodes run all services. Designed for a small LAN or a low-latency WAN. General recommendation is no more than 300ms round-trip latency between nodes. Small Network Split Deployment Same but the two nodes are in different Data Centers. in this type of deployment, all personas will be running on the same node just like standalone deployment type. What differentiates it from standalone deployment is node the personas are running on two nodes i.e. Pri PAN, Pri MnT, PSN, and or pxGrid are running on node 1 while Sec PAN, Sec MnT, PSN, and or pxGrid are running on node 2. Note that the primary and secondary role of the Admin and MnT personas can be mix-match.

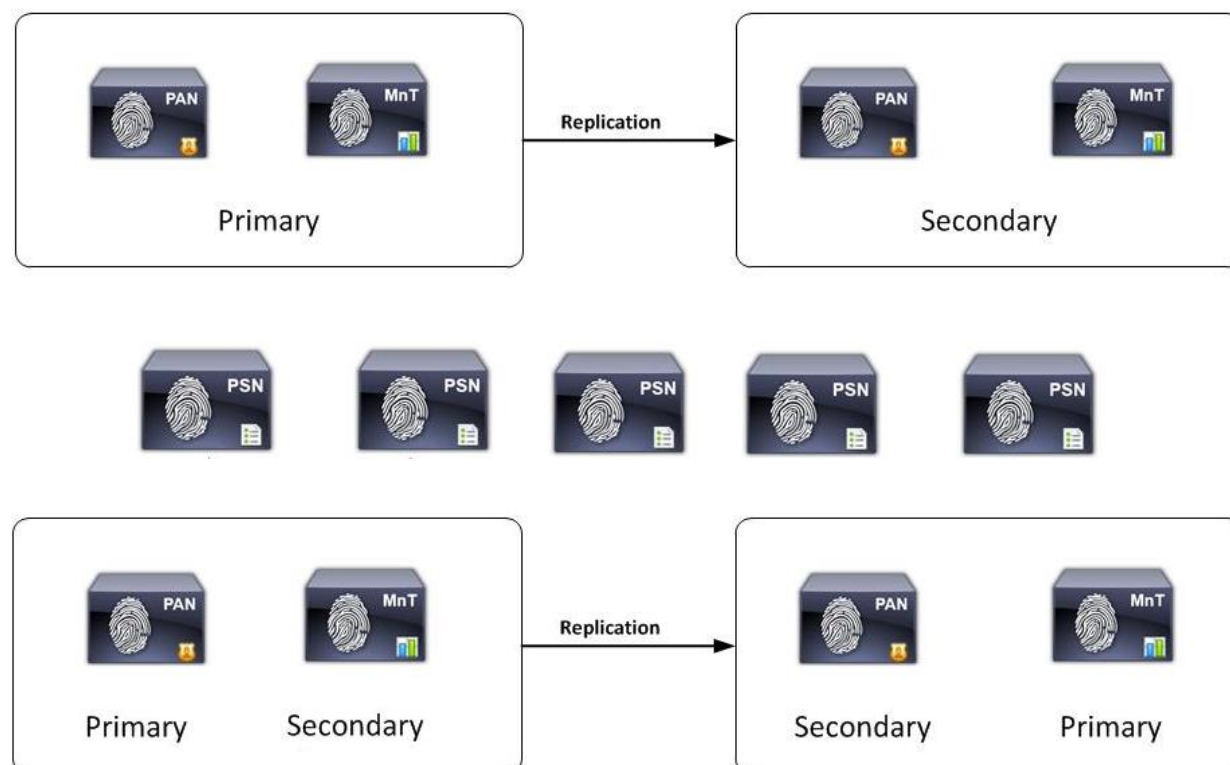
Node	Persona/Node Type
Cisco ISE Node 1	Primary PAN, Primary MnT, PSN and PxGrid
Cisco ISE Node 2	Secondary PAN, Secondary MnT, PSN and PxGrid
Node	Persona/Node Type
Cisco ISE Node 1	Primary PAN, Secondary MnT, PSN, and PxGrid
Cisco ISE Node 2	Secondary PAN, Primary MnT, PSN, and PxGrid



Medium Deployment:

In a medium deployment you may have 7 total ISE nodes. Two nodes will run both the PAN and MnT personas and up to 5 nodes will run as dedicated PSN personas. The PAN/MnT nodes will likely be placed in data center locations. In this model we have freed the PSN's to reside at any network location of your choosing. Some PSN's could be placed alongside the PAN/MnT in the data center, while some could be placed at critical campus/branch office locations. This would allow for those critical campus/branch office locations authentications to survive in the event of a WAN failure. As the size of your network grows or you want to expand your ISE topology you need to start adding more nodes and with a medium sized deployment start dedicating nodes to logging and administration. The medium sized deployment consists of a primary & secondary administration node and a primary and secondary monitoring node, alongside separate policy service nodes.

Node	Persona/Node Type
Cisco ISE Node 1	Primary PAN and Primary MnT
Cisco ISE Node 2	Secondary PAN and Secondary MnT
Cisco ISE Node 3, 4, 5, 6, 7	PSN1, PSN2, PSN3, PSN4, and PSN5
Node	Persona/Node Type
Cisco ISE Node 1	Primary PAN and Secondary MnT
Cisco ISE Node 2	Secondary PAN and Primary MnT
Cisco ISE Node 3, 4, 5, 6, 7	PSN1, PSN2, PSN3, PSN4, and PSN5



Large Deployment:

In a large deployment you may have 54 total ISE nodes. Two nodes will run the PAN persona, 2 nodes will run the MnT persona, and up to 50 nodes will run as dedicated PSN personas. The PAN/MnT nodes will likely be placed in data center locations. In this model we have freed the PSN's to reside at any network location of your choosing and dramatically increase the scale/flexibility of the deployment. Some PSN's could be placed alongside the PAN/MnT in the data center as a pool front-ended with a load balancer, while some could be placed at critical campus/branch office locations. This would allow for those critical campus/branch office locations authentications to survive in the event of a WAN failure. The use of load balancers, however not required, allows you to achieve greater scale while maintaining simplified network device configurations as each network device can point to two load balancer VIPs as RADIUS servers while many, many more ISE policy service nodes reside behind the load balancers. With a large network deployment, you dedicate each node to a separate persona. So a separate node for administration, monitoring and policy service. You should also consider using load balancers in front of the PSN nodes.

