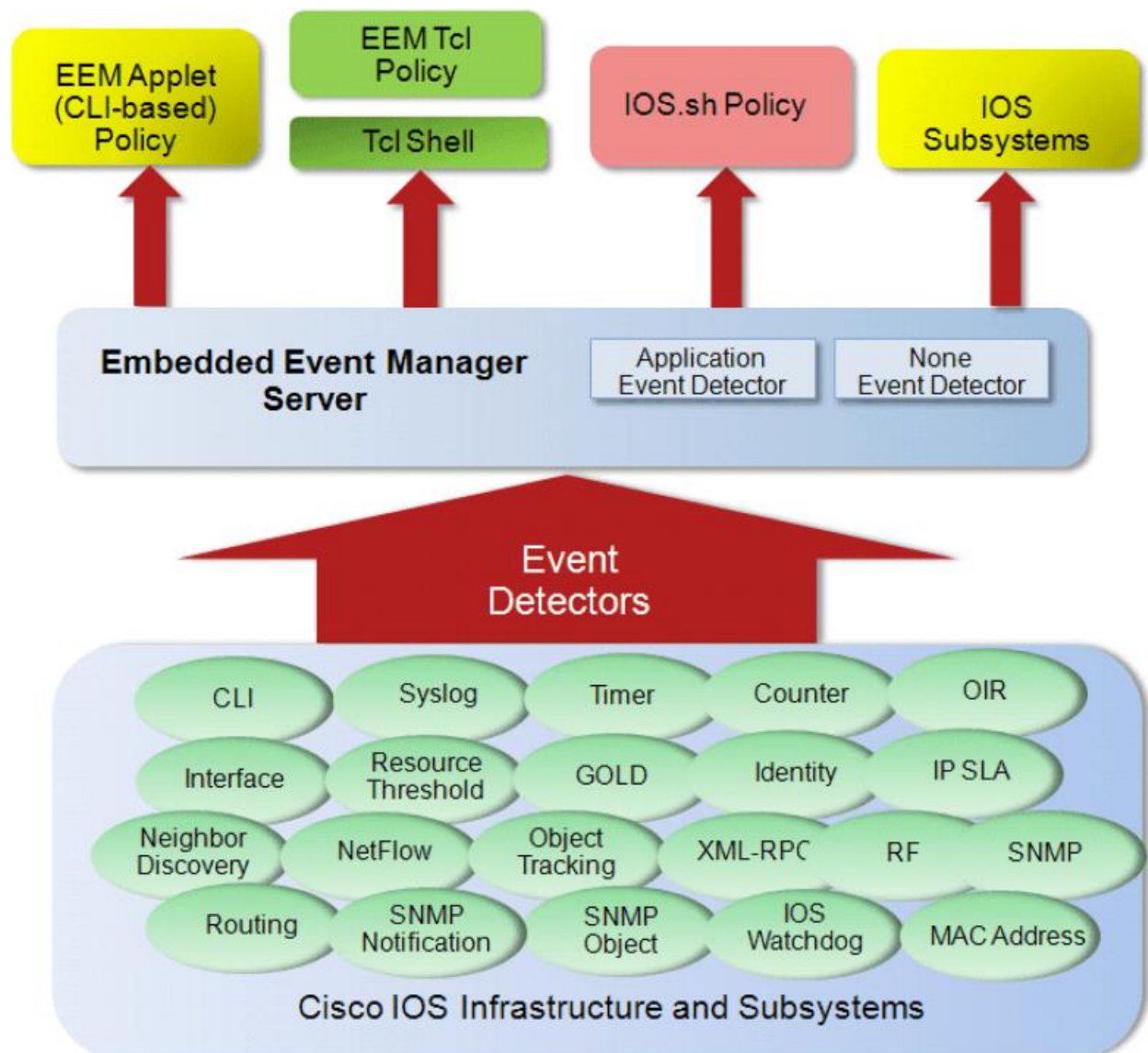


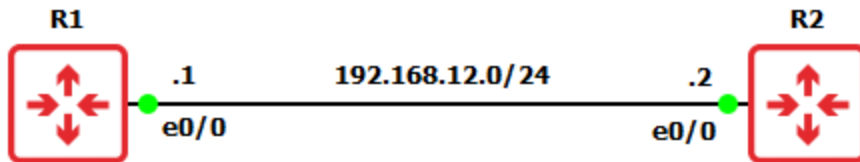
EEM (Embedded Event Manager):

- Embedded Event Manager (EEM) is a technology on Cisco Routers that lets you run scripts.
- EEM is a technology on Cisco Routers that run commands when a certain event happens.
- EEM is powerful & flexible tool to automate tasks and customize the behavior of Cisco IOS.
- The Cisco Embedded Event Manager or Cisco EEM is a software component of Cisco IOS.
- That provides real-time network event detection and onboard automation in Cisco IOS.
- EEM allows you to automate tasks, perform minor enhancements and create workarounds.
- EEM makes life easier for network operators by tracking & classifying events that take place.
- Embedded Event Manager (EEM) providing actions options for those events in the Network.
- Embedded Event Manager uses event detectors & actions to provide notifications of events.
- Embedded Event Manager supports more than 20 event detectors that are highly integrate.
- With different IOS Software components to trigger actions in response to network events.



Syslog Event Detector:

- o Syslog messages are the messages that you see by default on your Cisco Devices console.
- o There are many Syslog message Interface going up or down & such are all syslog messages.
- o Embedded Event Manager (EEM) can take action when one of these messages show up.
- o Let's start with an example that enables an interface once it goes down in Cisco Router.
- o Interface went down, Embedded Event Manager runs commands & interface is up again.
- o The applet is called "INT-Status" and the event is a syslog pattern that matches the text.
- o What happens is that whenever someone shuts interface, EEM will do a "no shut" on it.



No shutdown Interface
R1(config)#event manager applet INT-Status
R1(config-applet)#event syslog pattern "Interface Ethernet0/0, changed state to down"
R1(config-applet)#action 1 cli command "enable"
R1(config-applet)#action 2 cli command "config t"
R1(config-applet)#action 3 cli command "interface e0/0"
R1(config-applet)#action 4 cli command "no shutdown"
R1#debug event manager action cli
R1#show event manager policy registered

CLI Event Detector:

- o Another example of Embedded Event Manager to disable the use of the reload command.
- o The pattern itself – Between "", we can use this for normal text & also for Reg Expression.
- o Sync <yes/no> – Specifies if policy should be executed synchronously before CLI command.
- o Skip <yes/no> – Skip command Indicates if the CLI commands should be executed or not.
- o Occurs <1-32> – Indicates the number of occurrences before the EEM applet is triggers.

Block Reload Command
R1(config)#event manager applet noreload
R1(config-applet)#event cli pattern "reload" sync no skip yes occurs 1
R1(config-applet)#action 1 syslog msg "\$_cli_msg has been disable"
R1(config-applet)#exit
R1(config)#exit
R1#debug event manager action cli
R1#show event manager policy registered
R1#reload

EEM Event Detectors:

SNMP	Monitoring SNMP objects, events and notifications (SNMP traps) of the device.
Syslog	Responds to various syslog messages, allowing for matching on regular expressions of the content of the message.
Counter(s)	Monitoring and responding to interface counters when cross threshold settings.
CLI	Screening CLI input for a regular expression match or when a special parser character is entered, like Tab or “?” (question mark).
Timers	Countdown, watchdog and CRON.
Routing	When a route entry changes in the Routing Information Base (RIB).
RPC	Provides the ability to invoke EEM policies from outside the router over an encrypted connection using SSH.
OIR	(Online Insertion and Removal) When a card is removed or inserted.
Resource	When the Embedded Resource Manager (ERM) reports an event.
None	This event detector is to test the EEM script/applet using “event manager run” command.
EOT	Enhanced Object Tracking Event Detector – When the status of a tracked object changes.

EEM Versions:

The EEM feature is constantly evolving. EEM 1.0 was first introduced in 12.3(4)T but did not offer much in the way of power. Now, with EEM 3.x and 4.0 in recent versions of IOS, policies can interact with the CLI, send messages between devices, process complex show command output, intercept SNMP messages, manipulate files, and much more.

```
R2#show event manager version
Embedded Event Manager Version 4.00
Component Versions:
eem: (rel6)1.0.0
eem-gold: (rel1)1.0.2
eem-call-home: (rel2)1.0.4
Event Detectors:
Name                Version   Node      Type
application         01.00    node0/0   RP
rf                   01.00    node0/0   RP
identity            01.00    node0/0   RP
neighbor-discovery  01.00    node0/0   RP
msp                  03.00    node0/0   RP
routing              02.00    node0/0   RP
syslog               01.00    node0/0   RP
generic              01.00    node0/0   RP
nhrp                 01.00    node0/0   RP
track                01.00    node0/0   RP
resource             01.00    node0/0   RP
cli                  01.00    node0/0   RP
counter              01.00    node0/0   RP
interface            01.00    node0/0   RP
ioswdsysmon         01.00    node0/0   RP
none                 01.00    node0/0   RP
--More--
```