

26. Cisco Thousandeyes



PPT : 现任明教教主(秦柯)

主讲 : 现任明教教主 (秦柯)

教主VIP课程

翻越下一座技术的高峰



第一部分

Cisco Thousandeyes 实战



ThousandEyes 是什么?

ThousandEyes is a **Digital Experience Monitoring platform** that delivers visibility into **the end-to-end path a website, app or service takes to get to its intended end-user**. A real-time map for the always changing Internet, companies that rely on the Internet to deliver apps to customers or employees rely on ThousandEyes to make sure they can see, understand, and improve the delivery path so end users always have the best digital experience possible.

With cloud, enterprises can innovate much faster, but the growing number of cloud and SaaS applications means that more apps are being delivered over the Internet. This increases dependence on the Internet, a public “best effort” network, and other third-party infrastructures, substantially reducing the ability of IT teams to predict, visualize and control operational behavior. This results in a chaotic and unmanageable IT environment, making issue resolution a time-consuming ordeal, potentially impacting reputation and revenue.

ThousandEyes has innovated an approach based on an unmatched distribution of smart agents across the Internet and enterprise, providing visibility all the way to the end user. ThousandEyes gathers and analyzes massive volumes of data from all of these vantage points, enabling organizations to solve even their most obscure performance problems in minutes. By using ThousandEyes in the planning and testing phases of cloud adoption, customers can also strategically identify and fix underlying problems before production deployment of business-critical applications.



ThousandEyes 申请试用

<https://www.thousandeyes.com/signup>

Start Your 15-Day Free Trial

Get actionable insights into your critical customer- and employee-facing applications and services.

Tests included with your Free Trial:

- ✓ BGP routing tests
- ✓ End-to-end and path tests
- ✓ Page load and HTTP tests
- ✓ Synthetic transaction tests
- ✓ DNS server and trace tests
- ✓ VoIP RTP and SIP tests

ALL FIELDS REQUIRED

First Name Last Name

Business Email Company

Current Location
-- Select a Country --

Request a Free Trial

填写信息后申请免费试用，等待一个工作日确定。
(15天免费试用)

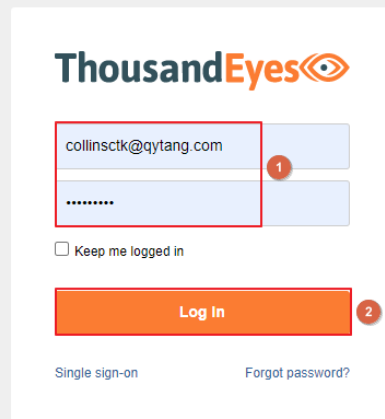
Get Started Today

1 2

Hello! What brings you to ThousandEyes?

登入ThousandEyes

<https://app.thousandeyes.com/login>



The image shows the login page for ThousandEyes. At the top is the ThousandEyes logo. Below it are two input fields: the first contains the email address 'collinsctk@qytang.com' and the second contains a masked password '*****'. A red box highlights both input fields, with a small red circle containing the number '1' to the right. Below the password field is a checkbox labeled 'Keep me logged in'. A large orange button labeled 'Log In' is positioned below the checkbox, with a red circle containing the number '2' to its right. At the bottom of the form are two links: 'Single sign-on' and 'Forgot password?'.

[Create free account](#)



登入ThousandEyes

The screenshot shows the ThousandEyes dashboard interface. The top navigation bar includes the ThousandEyes logo, the word "Dashboards", and user information "ke qin qiyang". The left sidebar lists navigation options: "Cloud & Enterprise Agents", "Endpoint Agents", "Devices", "Internet Insights" (marked as NEW), "Dashboards" (highlighted), "Alerts", "Reports", "Sharing", and "Account Settings". The main content area displays four widgets:

- Alert Grid** (1 day): Shows "No active alerts." with a refresh icon.
- Agent Status** (Real-time): Shows "No Endpoint Agents" with a house icon and a link to "Agent Settings".
- Tests** (12 hours): Shows "No Tests" with a clock icon and instructions to pick from a list of top SaaS services or create a new test.
- Pie Chart** (Web - HTTP Server — Response Time • 1 day): Shows "No Data".

At the bottom left, there is a feedback box: "I wish this page would..." and footer text: "ThousandEyes © 2020 Privacy".



ThousandEyes添加Agent

The screenshot displays the ThousandEyes 'Agent Settings' page. The sidebar on the left contains navigation items: 'Cloud & Enterprise Agents' (1), 'Agent Settings' (2), 'BGP Monitors', 'Endpoint Agents', 'Devices', 'Internet Insights', 'Dashboards', 'Alerts', 'Reports', 'Sharing', and 'Account Settings'. The main content area shows the 'Enterprise Agents' tab (3) with a search bar and an 'Add New Enterprise Agent' button (4). Below the search bar, a table header is visible with columns for 'Agent Name', 'Hostname', 'Utilization', and 'Status/Last Contact'. The table currently displays 'No Enterprise Agents Found'. A modal window titled 'Add New Enterprise Agent' is open on the right, showing configuration options: 'Package Type' (Appliance, Custom Appliance, Linux Package, Docker (5), SaaS Marketplaces), 'Usage Instructions', 'Name' (input field), 'Docker Version' (Dropdown: Docker 1.10.0 or later), 'Host Vol. Agent Directory' (input field), 'Proxy Type' (None, Static, PAC), and a section for 'Copy and run the following commands:' containing a terminal script for installing and running the agent via Docker.

```
docker pull thousandeyes/enterprise-agent > /dev/null 2>&1
docker stop '<NAME>' > /dev/null 2>&1
docker rm '<NAME>' > /dev/null 2>&1
docker run \
  --hostname='<NAME>' \
  --memory=2g \
  --memory-swap=2g \
  --detach=true \
  --tty=true \
  --shm-size=512M \
  -e TEAGENT_ACCOUNT_TOKEN=c1bisyop3hmr5u81flmsdmo9kiypmeo \
  -e TEAGENT_INET=4 \
  -v '<HOST_VOL_AGENT_DIR>/thousandeyes/<NAME>/te-agent':/var/lib/te-agent \
  -v '<HOST_VOL_AGENT_DIR>/thousandeyes/<NAME>/te-browserbot':/var/lib/te-browserbot \
  -v '<HOST_VOL_AGENT_DIR>/thousandeyes/<NAME>/log':/var/log/agent \
  --cap-add=NET_ADMIN \
  --cap-add=SYS_ADMIN \
  --name '<NAME>' \
  --restart=unless-stopped \
  thousandeyes/enterprise-agent /sbin/my_init
```

I wish this page would...

ThousandEyes使用Docker部署Agent

The screenshot displays the ThousandEyes management interface. On the left is a navigation sidebar with options like 'Cloud & Enterprise Agents', 'Views', 'Test Settings', 'Agent Settings', 'BGP Monitors', 'Endpoint Agents', 'Devices', 'Internet Insights', 'Dashboards', 'Alerts', 'Reports', 'Sharing', and 'Account Settings'. The main area shows 'Enterprise Agents' settings, including a search bar and an 'Add New Enterprise Agent' button. A modal dialog titled 'Add New Enterprise Agent' is open on the right, with the following fields and options:

- Package Type:** Appliance, Custom Appliance, Linux Package, **Docker**, IaaS Marketplaces
- Usage Instructions:**
- Name:** qytang.cisco (marked with a red circle 1)
- Docker Version:** Docker 1.10.0 or later
- Host Vol. Agent Directory:** /pot (marked with a red circle 2)
- Proxy Type:** None, Static, PAC
- Copy and run the following commands:** (marked with a red circle 3)

```
docker pull thousandeyes/enterprise-agent > /dev/null 2>&1
docker stop 'qytang.cisco' > /dev/null 2>&1
docker rm 'qytang.cisco' > /dev/null 2>&1
docker run \
  --hostname='qytang.cisco' \
  --memory=2g \
  --memory-swap=2g \
  --detach=true \
  --tty=true \
  --shm-size=512M \
  -e TEAGENT_ACCOUNT_TOKEN=clbisyop3hmor5u81flmsdmo9kiypmeo \
  -e TEAGENT_INET=4 \
  -v '/pot/thousandeyes/qytang.cisco/te-agent':/var/lib/te-agent \
  -v '/pot/thousandeyes/qytang.cisco/te-browserbot':/var/lib/te-browserbot \
  -v '/pot/thousandeyes/qytang.cisco/log':/var/log/agent \
  --cap-add=NET_ADMIN \
  --cap-add=SYS_ADMIN \
  --name 'qytang.cisco' \
  --restart=unless-stopped \
  thousandeyes/enterprise-agent /sbin/my_init
```

At the bottom of the page, there is a footer with 'ThousandEyes © 2020' and a 'Privacy' link.



Docker本地部署Agent

```
[root@docker-node1 qyt_docker]# docker stop 'qytang.cisco' > /dev/null 2>&1
[root@docker-node1 qyt_docker]# docker rm 'qytang.cisco' > /dev/null 2>&1
[root@docker-node1 qyt_docker]# docker run \
> --hostname='qytang.cisco' \
> --memory=2g \
> --memory-swap=2g \
> --detach=true \
> --tty=true \
> --shm-size=512M \
> -e TEAGENT_ACCOUNT_TOKEN=clbisyop3hmor5u81flmsdmo9kiypmeo \
> -e TEAGENT_INET=4 \
> -v '/pot/thousandeyes/qytang.cisco/te-agent':/var/lib/te-agent \
> -v '/pot/thousandeyes/qytang.cisco/te-browserbot':/var/lib/te-browserbot \
> -v '/pot/thousandeyes/qytang.cisco/log':/var/log/agent \
> --cap-add=NET_ADMIN \
> --cap-add=SYS_ADMIN \
> --name 'qytang.cisco' \
> --restart=unless-stopped \
> thousandeyes/enterprise-agent /sbin/my_init
ec29a6a04eadac5e91be273ac0479fc4a36e1184887dbb08b761a91a8b942e39
```

要等待一段时间

```
[root@docker-node1 qyt_docker]# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
ec29a6a04ead	thousandeyes/enterprise-agent	"/sbin/my_init"	57 minutes ago	Up About an hour		qytang.cisco



查看Agent部署成功信息

The screenshot displays the ThousandEyes management console. The main view is 'Agent Settings' for 'Enterprise Agents'. A table lists agents, with 'qytang.cisco' highlighted. A modal window is open for this agent, showing configuration details. A red box highlights the configuration fields, and a green box contains a note about local Docker deployment.

Agent Settings - Enterprise Agents

Assigned to Account Group **qytang** | 1 Enterprise Agent

Agent Name	Hostname	Utilization	Status
qytang.cisco	qytang.cisco	0%	Online

qytang.cisco Configuration

- Agent Name: qytang.cisco
- Country: China
- Region/City: Beijing
- Account Groups: 1 of 1 selected
- Tests: 0 of 0 selected
- Enable agent notifications:
- Installation Type: 1 of 1 selected

Status: Online
Last Contact: 2 Minutes Ago

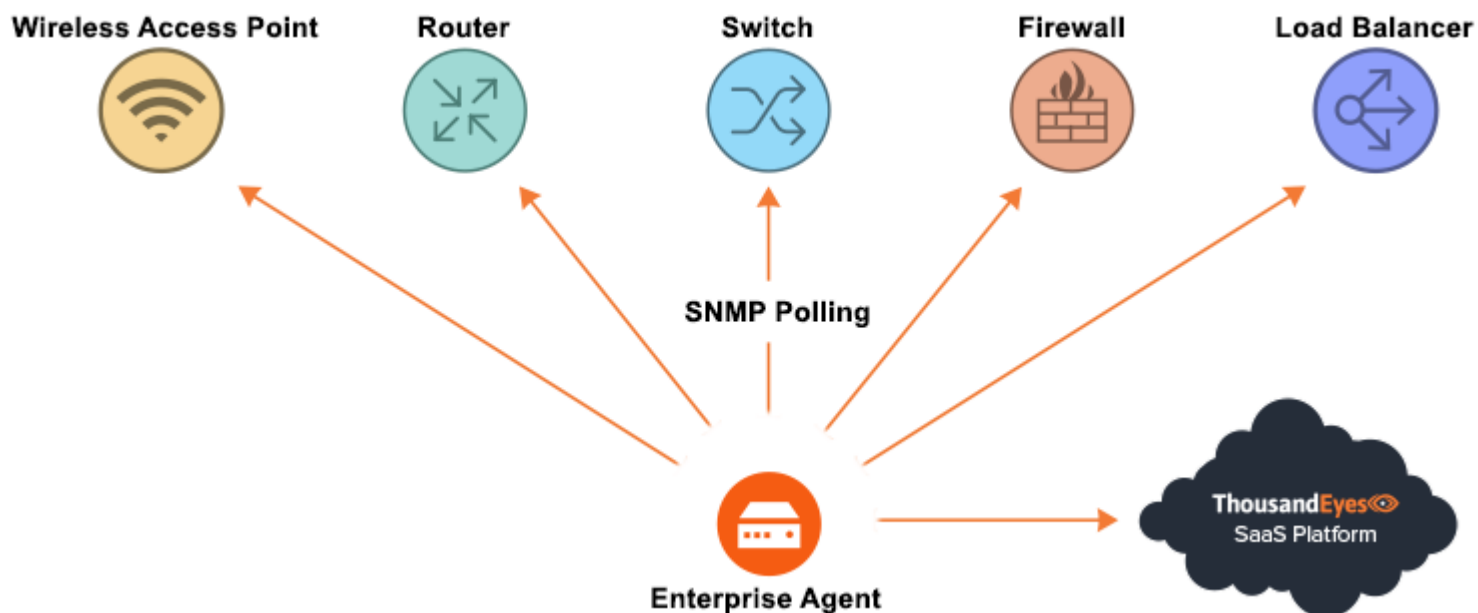
General Information

Primary Account Group	qytang
Created	Thu, Aug 13, 2020
Private IP Address	172.17.0.6
Public IP Address	61.51.111.34
Operating System	Ubuntu 18.04.4 LTS
Agent System Time	03:56 UTC
Agent Version	1.95.0
BrowserBot Version	1.138
Installation Type	Docker Container

Local Deployment Note: 在本地服务器docker部署Agent成功后，自动注册到云端

ThousandEyes设备发现

ThousandEyes' Device Layer monitoring utilizes Enterprise Agents to poll your network devices using the [Simple Network Management Protocol \(SNMP\)](#). The Enterprise Agents must complete an initial device discovery process prior to monitoring the desired devices. Credentials for one or more devices must first be configured before the discovery of devices.



ThousandEyes设备发现条件

- ThousandEyes Device Layer requires **either SNMP version 2c or SNMP version 3**. Device Layer retrieves the same data regardless of version SNMPv2c or SNMPv3, so you can configure either of the two versions. SNMPv3 provides better authentication, and data encryption in transfer.
- Device Layer requires read-only access to the SNMP information. We recommend creating new read-only credentials for the Enterprise Agents, but existing read-only credentials can also be used.
- Before the initial device discovery, perform the following steps:
 1. Verify that each device will answer SNMP queries.
 2. Obtain from each device:
 - the version of SNMP enabled**
 - community string (SNMPv2c) or authentication & privacy settings**
 3. **Ensure SNMP queries are allowed from the Enterprise Agent IP addresses to each device.** Your target or other network devices (firewalls and other security devices) may restrict SNMP queries from Enterprise Agents to your target network devices using access control lists (ACLs). If so, add the Enterprise Agents' IP addresses to the ACLs. Allow SNMP queries destined to port 161/UDP.

在本地路由器设备上配置SNMPV3

```
snmp-server group qytanggroup v3 priv  
snmp-server user qytanguser qytanggroup v3 auth md5 12345678 priv des 87654321  
snmp-server enable traps
```

配置设备凭证

The screenshot shows the 'Device Credentials' configuration page in the ThousandEyes interface. The page is titled 'Devices > Device Settings' and includes a navigation sidebar on the left. The main content area features a breadcrumb trail: 'Devices > Device Discoveries > Device Credentials > Device Notifications'. A search bar labeled 'Search by Name' shows '2 credentials'. A blue button labeled 'Add New Credentials' is present. Below the search bar is a table with the following data:

Name	Type	Monitored Devices	Scheduled Discoveries
Public	SNMPv2c	0	0
Private	SNMPv2c	0	0

At the bottom of the page, there is a footer with the text 'ThousandEyes © 2020' and a 'Privacy' link.



ThousandEyes配置设备发现SNMPv3

The screenshot displays the ThousandEyes interface for configuring device credentials. The main window shows the 'Device Settings' page with a sidebar on the left containing navigation options like 'Cloud & Enterprise Agents', 'Endpoint Agents', 'Devices', 'Views', 'Device Settings', 'Internet Insights', 'Dashboards', 'Alerts', 'Reports', 'Sharing', and 'Account Settings'. The main content area is titled 'Device Credentials' and shows a search bar and a list of credentials. A modal dialog titled 'Add New Credentials' is open, allowing the user to create a new credential. The dialog fields are as follows:

- Name: csr1000v
- SNMP Type: SNMPv2c (selected), SNMPv3
- Security Name: qytanguser
- Context Name: Optional
- Authentication Protocol: HMAC-MD5
- Authentication Key: 12345678
- Privacy Protocol: DES
- Privacy Key: 87654321

The dialog also features 'Cancel' and 'Add New Credentials' buttons at the bottom. A red box highlights the 'Add New Credentials' button, and a green box highlights the 'Authentication Key' and 'Privacy Key' fields. A red circle with the number '1' is next to the 'Context Name' field, and a red circle with the number '2' is next to the 'Cancel' button.

I wish this page would...



ThousandEyes手动添加设备发现

The screenshot shows the 'Find New Devices' configuration page in the ThousandEyes interface. The left sidebar has 'Device Settings' highlighted with a red box and a '1' marker. The main configuration area has 'Devices' highlighted with a red box and a '2' marker. A search bar and a 'Find New' button are highlighted with a red box and a '3' marker. The 'Find New' button is also highlighted with a red box and a '4' marker. The right sidebar has a 'Start Discovery' button highlighted with a red box and a '5' marker. The main configuration area contains fields for 'Targets' (10.1.1.102), 'Monitoring Agent' (qytang.cisco), and 'Credentials' (CSR1000V). The right sidebar contains 'Prerequisites' and 'Configure and import credentials your devices' sections.

Find New Devices Hide Prerequisites

Basic Configuration **Advanced Settings**

Targets
10.1.1.102 ✕

Monitoring Agent
qytang.cisco 4

Credentials
CSR1000V

Save as scheduled discovery

Prerequisites

Ensure the devices you want to monitor are supported
We support routers, switches, firewalls, load balancers and wireless access points that expose standard SNMP MIBs.

Make sure your devices are reachable by your Enterprise Agents
Confirm the devices will allow SNMP requests from the IPs of your Enterprise Agents.

Configure and import credentials your devices
Device Layer requires read-only SNMP credentials. Make sure you have already set up the credentials for each device you would like to discover.

Start Discovery 5

I wish this page would...

ThousandEyes手动添加设备发现

The screenshot shows the ThousandEyes interface with a notification modal open. The modal title is "One New Device Discovered" and it lists the device "R2". A "Close" button is highlighted with a red box. The background shows the "Devices" page with a table of discovered devices.

Name	Type	Monitoring Agent	Last Contact
R2	Router	-	-

ThousandEyes监控本地设备

The screenshot shows the 'Device Settings' page in the ThousandEyes interface. The left sidebar contains navigation options: Cloud & Enterprise Agents, Endpoint Agents, Devices, Views, Device Settings (highlighted), Internet Insights, Dashboards, Alerts, Reports, Sharing, and Account Settings. The main content area is titled 'Devices' and includes tabs for 'Device Discoveries', 'Device Credentials', and 'Device Notifications'. A search bar is present with the text '2 devices' and a 'Find New Devices' button. Below the search bar is a table of discovered devices:

<input checked="" type="checkbox"/>	Name	Type	Monitoring Agent	Last Contact
<input checked="" type="checkbox"/>	R1	NEW Router	-	-
<input checked="" type="checkbox"/>	R2	NEW Router	-	-

At the bottom of the page, there is a control bar with a 'Monitor' button (highlighted with a red box and a '2' badge), an 'Unmonitor' button, and an 'Edit Devices' dropdown menu. The text '2 devices selected' is displayed to the right of the buttons. A footer at the bottom left contains the text 'ThousandEyes © 2020 Privacy'.

cisco csr1000v 开启CDP

```
R1#configure terminal
!  
R1(config)#cdp run
!  
R1(config)#interface gigabitEthernet 1
!  
R1(config-if)#cdp enable
```

CSR1000V默认全局和接口都没有
开启cdp

查看本地设备监控状态

The screenshot shows the 'Devices' section of the ThousandEyes management console. The left sidebar contains navigation options like 'Cloud & Enterprise Agents', 'Endpoint Agents', 'Devices', 'Views', 'Device Settings', 'Internet Insights', 'Dashboards', 'Alerts', 'Reports', 'Sharing', and 'Account Settings'. The main content area is titled 'Devices' and includes tabs for 'Device Discoveries', 'Device Credentials', and 'Device Notifications'. A search bar is present with the text 'Search by name or description' and '2 devices'. Below the search bar is a table with the following data:

<input type="checkbox"/>	Name	Type	Monitoring Agent	Last Contact
<input type="checkbox"/>	R1	Router	qytang.cisco	Just Now ...
<input type="checkbox"/>	R2	Router	qytang.cisco	Just Now ...

At the bottom of the page, there is a footer with the text 'I wish this page would...', 'ThousandEyes © 2020', and a 'Privacy' link.

查看发现实验拓扑

Devices > Views

Upgrade ? ke qin qytang

VIEWS Add a filter Save and Share

Devices 24h 7d 14d Metric Throughput

Network

Input Throughput Output Throughput

06:00 12:00 15:00 18:00 21:00 Aug 13 03:00 06:00

August Aug 4 Aug 7 Aug 10 Aug 13

Showing data from Thu, Aug 13 06:35 - 06:37 UTC (2 Minutes Ago) Latest

Highlight nodes and links that match all / any

Filter by name, type, description, IP or MAC address...

Edit Topology Layout

Topology Interface Tab Link Tab

Grouping	Devices with	R2	Device	R1
Highlighting	Interface	GigabitEthernet1	Interface	GigabitEthernet1
Selecting	Monitored	Monitored	Status	Monitored
	1 Gbps	Speed	1 Gbps	

Input	Output	Throughput	Input	Output
237.9 kbps	587.8 bps	Throughput	237.8 kbps	770.9 bps
0 pps	0 pps	Errors	0 pps	0 pps
0 pps	0 pps	Discards	0 pps	0 pps

Show on timeline Show metrics

Show on timeline Show metrics

R2 R1

I wish this page would...

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