eG Enterprise Licensing

eG Innovations Product Documentation

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Total Performance Visibility

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Chapter 1: Introduction

The eG Enterprise Suite is a 100% web-based monitoring solution that offers integrated monitoring of all the infrastructure components (network, system, and application) that are involved in delivering a business service. The eG Enterprise Suite follows the traditional manager-agent architecture. While the eG manager controls what infrastructure elements are to be monitored and how frequently they are to be monitored, the eG agents are software components that perform the monitoring functions and report metrics in real-time to the management console. The eG manager takes care of storing the data reported by the agents, correlating between data from different agents to perform root-cause analysis, and providing data analysis and troubleshooting capabilities for users.

The overall functioning of the eG manager and eG agents is governed by the eG license. The license optionally enables or disables specific manager capabilities and imposes limits on the extent of monitoring that can be performed by the eG agents.

In contrast to existing monitoring solutions where a separate license is required for monitoring every application, the eG Enterprise Suite offers a single, simple license that controls all the target applications and hosts that are to be monitored in the target infrastructure.

The goals of eG Enterprise Suite's licensing policy are:

- **Simplify the administration** and use of eG products, by providing license management from a single, central location (i.e., the eG manager);
- **Require minimal configuration** and license management when adding new applications for monitoring
- **Reduce the overheads** involved in maintaining separate monitoring packages for individual applications;

This document topic explains the key ingredients of the eG license, and how it controls each of the monitoring capabilities of the eG Enterprise Suite.

1.1 Licensing of the eG Manager

In the eG Enterprise architecture, the license is centrally controlled on the eG manager. The license on the eG manager is typically node-locked. That is, if you need to move the manager to a different IP address or host, you will need to get a new license for the manager. The details of the license deployed on an eG manager can be viewed from the **LICENSE INFORMATION** page of the eG administration console (see Figure 1.1).

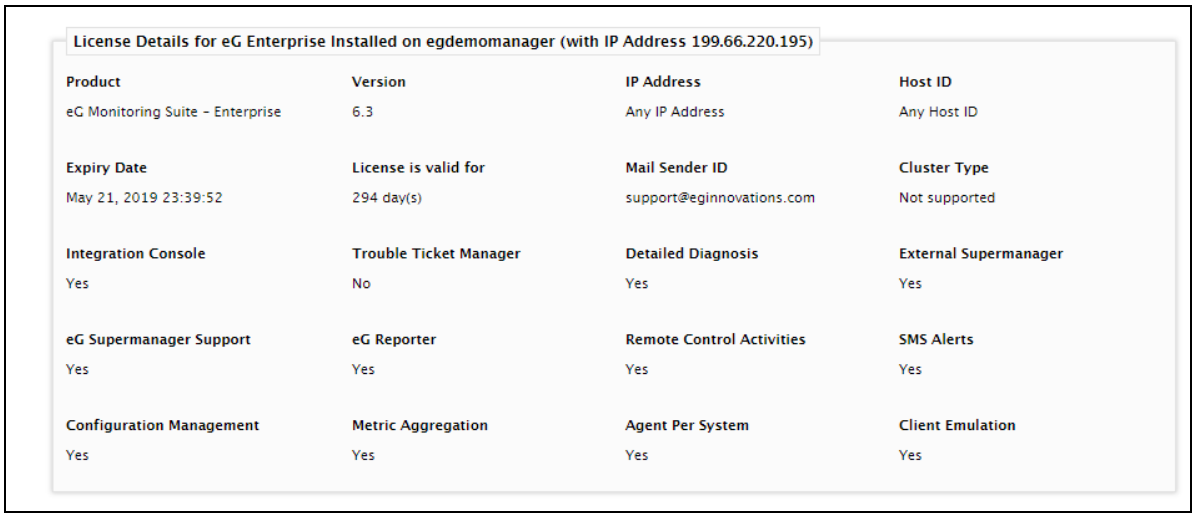

Figure 1.1: The eG manager license

For the eG manager to function, the license must support the IP address and MAC of the system on which the eG manager is installed. The version of the eG license should also match the version of the eG manager that is it deployed on. For example, a version 6.1 license should not be used to operate an eG manager v 6.2.1.

If the eG manager fails to start, please check the error_log file in the <EG_INSTALL_DIR>\manager\logs folder. An error *"LicenseMgr – Invalid License"* indicates that the license you have deployed on the eG manager is not valid.

If the eG manager does not start, you will not be able to view the license details from the eG administration interface. In such cases, a command line utility "viewCert" is included in the eG manager package to view the license details. To run this command, do the following (on Windows, Linux or Solaris):

1. Login to the eG manager host.
2. On a Solaris/Linux host, switch to the /opt/egurkha/bin directory (in case of a Windows host, switch to the <EG_INSTALL_DIR>\bin directory).
3. To view the license, issue the following command on a Solaris/Linux/Windows: **viewCert license**

Chapter 2: Types of eG Monitoring Licenses

eG monitoring licenses are of two types:

- Server-based
- User-based

Customers can pick one of the license types listed above, depending upon the nature of their environment and their monitoring needs. A mix of server-based and user-based licenses can also be used – e.g., all the key server applications like Active Directory, SQL server, Java applications can be monitored with agent/agentless monitor licenses and thin-client servers can be monitored with named user licenses.

The sections that follow will discuss each of these license types in detail.

2.1 Server-based eG Monitoring License

By default, the eG monitoring license is server-based. For each server, a unique nick name is assigned and an eG monitor license is required. The number of eG monitors that can be deployed in the target infrastructure is controlled by the eG monitoring license.

eG Enterprise supports agent-based and agentless monitoring. The eG monitors can be inter-changeably used and the IT manager has complete flexibility in deciding which servers to monitor with agents and which ones to monitor without agents. Any combination of agent and agentless monitoring can be used and eG Enterprise still provides a consistent view of metrics across these different monitor types.

Since the license is deployed on the eG manager, there is no need to deploy any licenses on the agents. Furthermore, the eG license only controls the number of monitors that are deployed. It does not control which servers are monitored. Hence, the IT manager can decide to monitor one set of servers this week and over the next week, can choose to deploy the monitoring on a completely different set of servers. As long as the total number of monitors being deployed is within the limit indicated in the license, your eG Enterprise system will function correctly.

Server-based licensing is ideal for environments where a large number of users access a few servers – eg., in server-based environments (e.g., Citrix XenApp) hosted on physical servers having 100-200 users per server. In this case, the cost of the monitoring license is amortized across the users, thus making server-based licensing a cost-effective choice.

There are different types of monitors supported by the eG server-based license. Each of these types have been elaborately discussed in the sub-sections below. This topic discusses each of these types.

2.1.1 The OS Monitor

To monitor a server operating system, you need an **OS monitor**, which is referred to in the eG license as a **basic monitor**. Using a basic monitor license, you can monitor Windows, AIX, Solaris, Linux, HPUX, Netware, AS400, OpenVMS and other servers. This license can also be used for Microsoft File and Print servers. The OS monitor tracks system uptime, utilization of key OS resources such as CPU, memory, and disk, network traffic to and from the server, the performance of the TCP/IP stack, etc. It can also monitor application log files for exceptions, Windows and Unix system logs, and it can monitor the status and resource usage of key processes/services running on the system. Typically, the OS monitor is used to any staging/development systems that do not require in-depth monitoring of applications.

The eG licensing is not based on the hardware capabilities of the server being managed or on the specific operating system being monitored. This provides unparalleled flexibility to an IT manager. Therefore, she/he can be managing a Unix server on one day and a Windows servers on another, with the same eG monitoring license.

2.1.2 The Virtualization Monitor

To monitor a virtualization platform such as VMware vSphere, Citrix XenServer, Microsoft Hyper-V, Solaris LDoms AIX LPARs, etc., you need a **virtualization monitor**. In the eG license, this is referred to as a **premium monitor**. The number of licenses required is equal to the number of virtualized servers to be monitored. This implies that the licensing is not based on the number of CPU cores or sockets on the servers, its memory configuration, or the number of virtual machines (VMs) that are hosted on the server. With a single virtualization monitor, an administrator can monitor the hypervisor as well as the VMs. For the VMs, eG Enterprise provides its patent-pending In-N-Out monitoring view that allows the administrator to see the portion of physical resources that a VM is using as well as the portion of virtual resources that each application running inside the VM is consuming.

2.1.3 The Application Monitor

To monitor applications such as Oracle databases, Microsoft SQL server, web servers like Apache and IIS, Java application servers like Tomcat, JBoss, WebLogic and WebSphere, Citrix XenApp and Terminal servers, or any of the other 150+ applications that eG Enterprise supports, you will need an **application monitor** for each server to be monitored. In the eG license, this is referred to as a **premium monitor**. One premium monitor is required for each server operating system being monitored (assuming one IP address per operating system). This means that eG's licensing is not for individual applications. If multiple applications run on the same system (e.g., IIS, SQL server and Tomcat all run on the same system), a single premium monitor license will suffice. Likewise, eG's

licensing model allows IT managers great flexibility in deploying the monitoring. The eG Enterprise suite does not use the concept of knowledge modules or smart plugins for each application to be monitored. This means an IT manager can use an eG license to monitor an Oracle database on one day and reuse the same license to monitor a Citrix XenApp server on another day. Note that an application monitor includes the capabilities of an OS monitor, so a separate OS monitor license is not required if a server already has an application monitor license.

2.1.4 The eG External Monitor

To monitor network devices using SNMP, to track network connectivity to different servers and network devices, and to monitor applications from an external perspective, an eG external monitor is required. In the eG license, this maps to a **premium monitor** license. One external monitor license is required for every 50 targets being monitored from an external perspective.

2.2 User/VM-based eG Monitoring License

The server-based licensing model is appropriate for applications that are licensed per server – e.g., web servers, databases, J2EE, infrastructure servers, etc. Applications that handle user accesses like Citrix XenApp and Microsoft Remote Desktop Services are often licensed per user/users, rather than per server. To align the monitoring solution's licensing with the application's licensing, eG Enterprise supports the following user/VM-based licensing modes:

- Named user/VM licensing
- Concurrent user/VM licensing

Each of these user/VM-based licensing modes are discussed in the sub-sections that follow.

2.2.1 Named User/VM Licensing

If an application such as Citrix XenApp is hosted on a physical server, typically, you would have 100-200 users accessing each server. In this case, the server-based licensing options discussed above are ideal as the cost of the monitoring license is amortized across the users, thus reducing the total cost of monitoring. However, if the same application is virtualized, the number of users per server decreases; this in turn increases the monitoring license cost. In such environments, the **Named User/VM** licensing option is more suitable. This licensing option is applicable only to **Thin Client** and **VDI** environments, where you typically have only a few users accessing the servers at any given point in time. If this option is enabled, you can monitor any number of Citrix XenApp servers, VMware Horizon RDS servers, Microsoft RDS servers, 2X Terminal servers, hypervisors hosting virtual desktops, and/or cloud hosted desktops in your environment **without any agent licenses**, provided the total number of:

- **unique users** who accessed any of the servers, virtual desktops (in the case of hypervisors hosting VDI), and cloud hosted desktops over the last 90 day period;
- **unique powered-on VMs**running on the hypervisor /cloud components to which no user has logged in during the last 90 days;

is within a licensed limit of named user/VM licenses.

Every day, eG Enterprise computes the total count of unique users/VMs and stores this count in the eG backend. The solution then checks the values so stored in the last 14 days for violations. When performing this check, if the solution finds that the total number of unique users/VMs on any day during the last 14 days exceeds the licensed number of **Named Users/VMs**, then a license violation is registered.

If this license is violated in any 7 out of the last 14 days, the eG agents will stop executing the following tests:

- The application-level tests mapped to the managed Citrix XenApp, Microsoft Terminal, VMware Horizon RDS, and 2X Terminal servers;
- All the inside-view tests of the VDI components (hypervisors hosting virtual desktops)
- A few outside-view tests of the VDI components

This implies that the **host-level** tests of these components will continue to run and report metrics.

Moreover, after the seventh violation (in 14 days), you will not be able to add/manage any additional thin client, VDI, or cloud desktop components (of the types mentioned previously). For every license violation that occurs in the last 14 days, eG sends mail alerts to the users regarding the license violation.

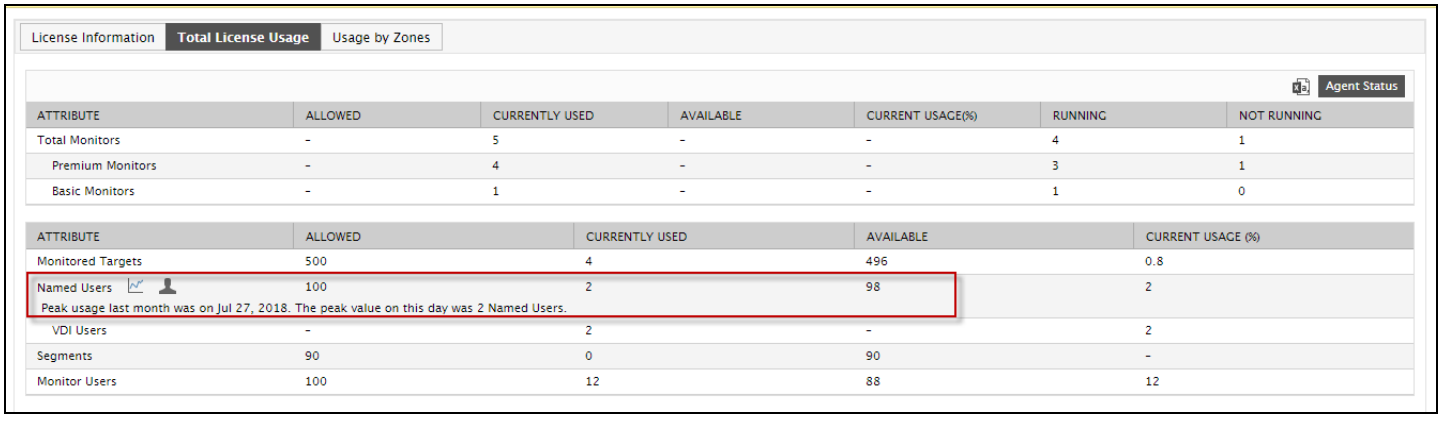

Figure 2.1: The LICENSE USAGE section of the License Information page displaying the usage details of the Named User/VM licenses

2.2.2 Concurrent User/VM Licensing

The concurrent user/VM licensing model is ideal for environments where a large number of users access the servers every day, but only a small subset of this user population accesses the servers concurrently – i.e., at the same time. For example, in a university, you could have thousands of students coming in every day; but, every time a class is in session, you will have a few students accessing their desktops simultaneously to attend the class. If you opt for the named user/VM licensing model here, you will have to obtain licenses for all the users who log into their desktops each day; this may prove to be expensive. The concurrent user/VM licensing model on the other hand, will be more cost-effective in such environments, as you will have to obtain a license for only those users who access their desktops concurrently and/or those VMs that are powered-on but have not been accessed by any user.

Like named user/VM licensing, **Concurrent user/VM** licensing too is applicable to **Thin Client**, **VDI** , and cloud-hosted desktop environments only. If this option is enabled, you can monitor any number of Citrix XenApp servers, Microsoft RDS servers, VMware Horizon RDS servers, 2X Terminal servers, and/or VDI and cloud-hosted desktop environments **without any monitor licenses**, provided the maximum number of unique users/VMs on these servers every day during the last 14 days is within a stipulated license limit.

At configured intervals (default: 30 minutes), the eG manager automatically computes the total number of users who accessed all the managed **Thin Client** components, hypervisors hosting virtual desktops, and cloud hosted virtual desktops. Likewise, it also counts the total number of powered-on VMs on the managed hypervisor/cloud desktop components that have not been accessed by a user during the configured period. The total number of concurrent users/VMs is computed and stored every 30 mins (by default) and at the end of the day, the maximum value for the day is determined.

This maximum number is compared with the licensed number of concurrent users/VMs to capture violations (if any). If this license is violated in any 7 out of the last 14 days, the eG agents will stop executing the following tests:

- The application-level tests mapped to the managed Citrix XenApp, Microsoft Terminal, VMware Horizon RDS, and 2X Terminal servers;
- All the inside-view tests of the VDI components (hypervisors hosting virtual desktops)
- A few outside-view tests of the VDI components

This implies that the **host-level** tests of these components will continue to run and report metrics.

Moreover, after the seventh violation (in 14 days), you will not be able to add/manage any additional thin client, VDI, or cloud desktop components until you obtain additional **concurrent user/VM** licenses. For every license violation that occurs in the last 14 days, eG sends mail alerts to the users regarding the license violation.

Chapter 3: Licensing of eG Manager Add-Ons

The eG manager has several add-ons that are license controlled. Details of these add-ons are provided in the sub-sections that follow.

3.1 Integration Console

The eG Integration Console allows users to extend the capabilities of the eG Enterprise Suite – to add new component types (e.g., new network devices, custom applications, etc.) that are not supported out-of-the-box by the eG Enterprise Suite for monitoring. Using the Integration Console, administrators can also add new monitoring capabilities for existing component types. The Integration Console also allows the entire eG layer model for any of the currently supported component types to be modified/customized to meet the specific needs of customers. The **Integration Console** option in the eG license has to be enabled for this component to function.

3.2 Trouble Ticket Manager

Many enterprises use trouble ticketing (TT) systems to track problems with their IT infrastructures. Besides tracking current problems, these systems dispatch service requests to the appropriate maintenance personnel, and thus facilitate the speedy resolution of a problem. If the **Trouble Ticket Manager** option in the eG license is enabled, then the eG Enterprise system can be seamlessly integrated with an existing TT system in the target environment. As an outcome, the eG alarms will be fed into the TT system as trouble tickets, and these trouble tickets will then be forwarded to the corresponding service executive, who has to attend to the issue at hand immediately. Alternatively, the email interface that has become a common feature in TT systems in recent times can be used for transmitting eG alarms to TT systems.

3.3 eG Reporter

For enhanced historical reports and analysis, the eG Enterprise Suite includes an optional **eG Reporter** component. The eG Reporter offers comprehensive pre-canned and customizable reports of the availability, performance, and usage of the target infrastructure. By opting to use the eG Reporter, users can login from any where, at any time, and view historical reports. By seamlessly integrating with the eG Enterprise Suite, eG Reporter allows users to analyze any of thousands of metrics collected by the eG agents for trending, capacity planning, problem diagnosis, or service level audits.

3.4 Remote Control Actions

eG's Remote Control Action capability, when enabled, allows an administrator to remotely and securely access any monitored server in an IT infrastructure and to execute remote commands in order to perform detailed analysis of problems and to initiate corrective actions against them. The control actions are enabled with no change in the eG architecture. The agents do not listen on any TCP ports. Hence, security risks in the target environment are minimum. Furthermore, since control actions can be initiated from a web browser, they can be triggered from any where, at any time.

3.5 SMS Alerts

IT infrastructures that support mission-critical services need to be up and running 24x7. Timely, precise alerting by a monitoring solution can provide adequate notice for an IT manager to react immediately and to avert potential crisis situations. The SMS alerting capability allows eG Enterprise to provide any time, any where alerting. When turned on, this capability enables the eG manager to generate personalized alerts to the mobile phones of IT operations staff, so that operators only see alerts relating to networks, servers, applications, and services under their purview. To enable this capability, use the **SMS Alerts** option in the eG license, .

3.6 Manager Redundancy

To ensure high availability of the eG monitoring solution, eG Enterprise offers a redundant manager option wherein a secondary manager can act as an active or passive standby for the primary manager. This capability, together with the ability to deploy redundant external agents in multiple locations, ensures that there is no single point of failure for the monitoring solution. The Manager Redundancy is a license-controlled feature of eG Enterprise, and is governed by the **Cluster Type** option in the eG license. If the **Cluster Type** license option contains the value *Not Supported*, it indicates that the current installation of eG Enterprise supports a single manager only. If **Cluster Type** is set to *Active-Active* or *Active-Passive*, then it indicates that manager redundancy has been enabled for that eG installation. A cluster can have only a single **primary manager** and a single **secondary manager**. An *Active-Active* cluster is one where both the primary and secondary managers can both have agents reporting measures to them during normal operation (see Figure 3.1).

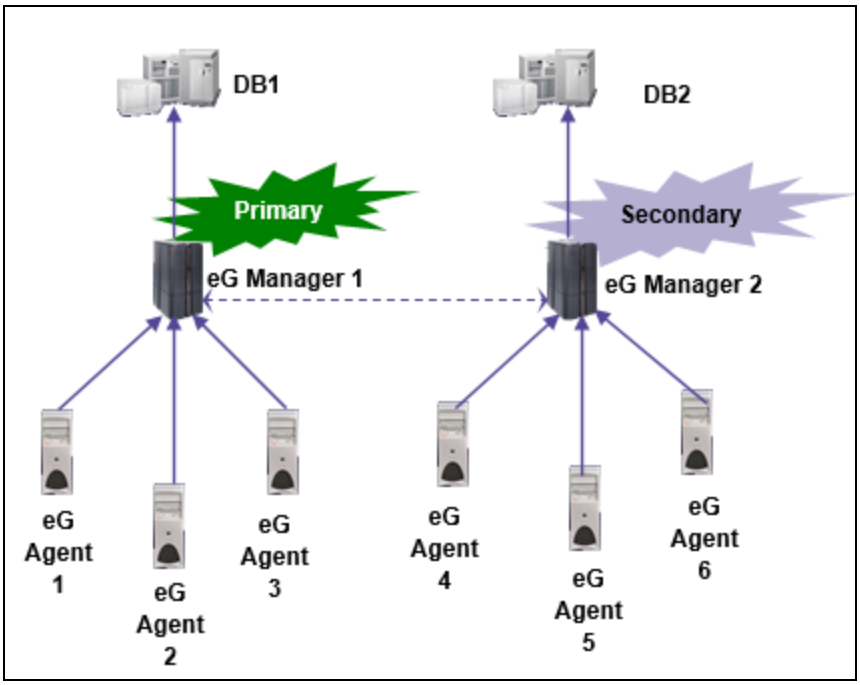

Figure 3.1: An Active-Active Manager Cluster

Alternatively, administrators can opt for an *Active-Passive* setup wherein the primary manager alone will manage all the agents deployed during normal operation. The secondary manager in such a setup will remain passive - i.e., will be up and running, but will not manage any agents unless the primary manager becomes unavailable (see Figure 3.2).

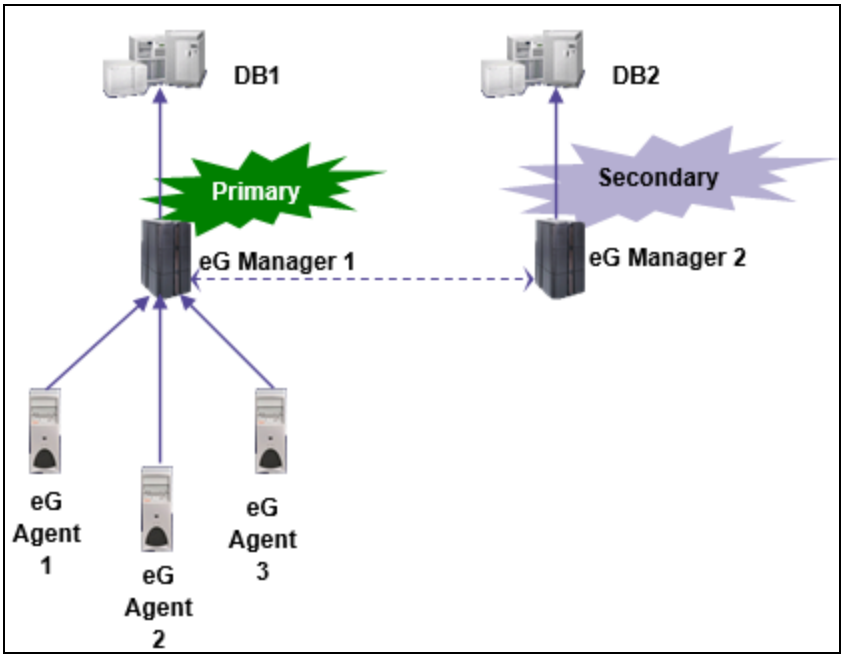

Figure 3.2: An Active-Passive Manager Cluster

3.7 Client Emulation

The license also controls the capability of the eG agents to run client emulation tests. The eG Enterprise Suite supports integration with Tevron's CitraTest and Itexis AppsMon. These tools allow administrators to record user transactions to an application, and to configure the eG agent to replay the recorded transaction to extract the required measures. eG agents will be able to run the emulated tests only if the **Client Emulation** flag in the eG license is set to **Yes**. Also, a dedicated external agent is required for executing the emulated tests – in other words, an external agent used in client emulation cannot be used for monitoring any other host/application.

3.8 Agent Per System

By default, eG's single agent license is tied to one IP address of a host. That is, if a host has multiple IP addresses, the eG Enterprise system requires one internal agent license for each IP address that is managed internally. Likewise, if multiple nicknames are used for the same IP address, a separate internal agent license is used for each unique nickname that has been specified. In many large environments, a single server has many IP addresses, each with different nicknames. The **Agent Per System** capability (also known as the **System Agent Module**) is intended to optimize the internal agent license usage in such large infrastructures. If this capability is enabled by the eG license, the administrator has the option of overriding the default eG agent licensing policy. For example, suppose a host A has two IP addresses 192.168.10.7 and 10.10.10.1, and that the first IP address 192.168.10.7 has already been managed in the eG Enterprise system. When adding the second IP address, 10.10.10.1, the administrator has the option of overriding eG Enterprise's default internal agent licensing policy – in this example, the administrator can indicate that the internal agent for the IP address 10.10.10.1 is actually the one that is already associated with the IP address 192.168.10.7. By doing so, the administrator can ensure that a single agent license is sufficient to manage all the IP addresses and applications executing on a host.

3.8.1 Configuration Reporting and Change Tracking

The license-controlled **Configuration Management** capability of the solution, when enabled, employs agent-based and agentless mechanisms to extract critical configuration and change details from each of the managed components in the environment, stores the data so collected in a central repository, and allows administrators to periodically query on the data via a 100%, web-based, easy-to-use **Configuration Management** console so that, the following tasks can be performed with elan:

- From time-to-time, take stock of the applications, operating systems, devices, software, hardware, and services that are available in the environment;

- Quickly access the basic configuration information pertaining to any system/application in the environment;
- Accurately identify systems on which critical services have stopped, or on which mandatory software is missing;
- Detect unplanned/unauthorized configuration changes with minimal effort;
- Assess how a configuration change could have influenced overall performance/health of the system/application;
- Run periodic checks to verify whether the entire infrastructure adheres to defined standards or not, and thus isolate deviations;

3.9 Metrics Aggregation

eG Enterprise typically monitors every component of a type, separately. However, sometimes, business owners may require aggregate metrics about their infrastructure. For instance, Citrix administrators might want to know the total number of users who are currently logged into all the Citrix servers in a farm, so that sudden spikes in the load on the farm (as a whole) can be accurately detected. Similarly, Windows administrators might want to figure out the average CPU usage across all the Windows servers in an environment, so that they can better plan the capacity of their Windows load-balancing clusters.

To provide such a consolidated view, eG Enterprise embeds a license-controlled **Metric Aggregation** capability. This feature, when enabled, allows administrators to group one or more components of a particular type and monitor the group as a single logical component, broadly termed as an *aggregate* component.

3.10 Detailed Diagnosis

To make root-cause diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable this capability, you need to enable **Detailed Diagnosis** in the eG license.

3.11 Supermanager

Large enterprises often have thousands of devices, servers, and applications that have to be managed, and a single eG management console may not have the capacity to handle the entire enterprise. To support such enterprises, multiple eG managers may be needed. However, if each of these managers operate independently, they may not provide a common view of the entire enterprise. Hence, it could be very cumbersome to have the IT staff of the enterprise login to

different eG management consoles to get a complete view of the status of the target infrastructure. For a consolidated view across disparate eG managers, you can use one of the following options:

- eG Supermanager
- External Supermanager

3.11.1 eG Supermanager

The **eG Supermanager** is a 100% web-based component of the eG Enterprise suite. Where multiple eG managers are deployed, you can configure all these managers to report performance and problem data to the centralized eG Supermanager. Users can then login to the eG Supermanager to receive an overview of performance across the different eG managers. To deploy and configure an eG Supermanager, you first need to enable **eG Supermanager Support** in the eG license.

3.11.2 External Supermanager

System Center Operations Manager (SCOM), formerly Microsoft Operations Manager (MOM or OpsMgr), is a performance and event monitoring product for Microsoft Windows operating systems. Since SCOM is an expert Windows monitoring solution, where SCOM is used, administrators are often seen using Management Packs (MP) from third-party monitoring tools to extend SCOM's monitoring functionality to non-Microsoft servers / applications. The key challenge in using multiple MPs is that these MPs are primarily from different vendors, and are hence not integrated. The lack of integration makes correlation and root-cause diagnosis near-impossible! What is needed therefore is a single, integrated solution that can update administrators on component health and alert them to anomalies across the target environment, regardless of the operating system or type of application/device in use.

eG Enterprise provides a **Universal Management Pack (MP) for SCOM** that can be used to monitor any application in an IT infrastructure – be it packaged enterprise applications and custom applications, Microsoft and non-Microsoft servers / applications, Virtualized and SaaS applications, or server hardware, network devices, or storage systems. Using this MP, you can view, track, and analyze the state and performance of eG-managed components from the SCOM console itself! Moreover, if you have multiple eG managers deployed in an environment, then, this MP can serve as the interface that routes performance and problem information from each of the managers to the SCOM management console. This way, you can have SCOM operate as the centralized 'External Supermanager' for all eG managers in the environment. To use the eG Enterprise Universal MP for SCOM, you first need to make sure that the **External Supermanager** capability is enabled in the eG license.

Chapter 4: Licensing FAQ

1. Consider an environment with 5 routers. How many monitors will be required for monitoring these routers?

   A single external agent is capable of monitoring over 50 network devices. Therefore, one Premium Monitor license is all that is required for monitoring the 5 routers.

2. How many monitors would an environment comprising of the following components, require?

   - Citrix XenApp servers - 2 Nos.
   - Application servers - 3 Nos.
   - DNS server - 1 No.
   - LDAP server - 1 No.
   - Database servers – 3 Nos.

   For the above setup, the total number of agents required is:

Component	Monitors Required	Remarks
XenApp server	2 Application monitors	One monitor per server
Application Servers	3 Application monitors	One monitor per server
Database Servers	3 Application monitors	One monitor per server
DNS	1 Application monitor	One monitor per server
LDAP	1 Application monitor	One monitor per server
For external monitoring of servers	1 External monitor for the default external agent on the eG manager	One monitor per external agent
Total number of monitors required = 11 Premium monitors		

3. How many monitors would an environment comprising of the following components, require?

   - Citrix XenApp servers – 2 Nos, , but 1 XenApp server is managed as a 'Generic server'
   - Exchange servers - 3 Nos, but 2 Exchange servers are managed as 'Windows' hosts

Component	Monitors Required	Remarks

XenApp server	1 Application monitor and 1 OS monitor	Application monitor for XenApp server, and OS monitor for Generic server
Exchange Servers	2 OS monitors and 1 Application monitor	Application monitor for Exchange mail server, and OS monitor for Windows hosts
For external monitoring of servers	1 External monitor for the default external agent on the eG manager	One monitor per external agent
Total number of monitors required = 3 Premium monitors + 3 Basic monitors		

4. How many monitors would an environment comprising of a XenApp server, an Exchange mail server, and an MS SQL database server, all executing on the same host, require?

   For the above setup, the total number of agents required is:

Component	Monitors Required	Remarks
XenApp, Exchange mail, MS SQL servers	1 Application monitor	One monitor for all applications tied to a single server IP address
For external monitoring of servers	1 External monitor for the default external agent on the eG manager	One monitor per external agent
Total number of monitors required = 2 Premium monitors		

5. How many monitors would an environment comprising of a XenApp server, an Exchange mail server, and an MS SQL database server, all executing on the same host but on different IP addresses, require?

Component	Monitors Required	Remarks
XenApp, Exchange mail, MS SQL servers	3 Application monitors	One monitor for each application operating on a different IP address on the same host
For external monitoring of servers	1 External monitor for the default external agent on the eG manager	One monitor per external agent
Total number of monitors required = 4 Premium monitors		

(OR)

Component	Monitors Required	Remarks

XenApp, Exchange mail, MS SQL servers	1 Application monitor	In this case, the eG license should enable the **Agent Per System** capability
For external monitoring of servers	1 External monitor for the default external agent on the eG manager	One monitor per external agent
Total number of monitors required = 2 Premium monitors		

6. If I want to monitor 10 instances of an MS SQL server, all running on the same host, how many licenses would I require?

Component	Monitors Required	Remarks
10 instances of an MS SQL server	1 Application monitor	Since all instances are running on the same host, a single agent license would suffice
For external monitoring of servers	1 External monitor for the default external agent on the eG manager	One monitor per external agent
Total number of monitors required = 2 Premium monitors		

7. I need to monitor 5 VMware vSphere servers in my environment. Each ESX server hosts 4 VMs. If I only want to monitor the host operating systems, and the status and resource usage of each of the guests both from within and outside, how many monitors would I require?

Component	Monitors Required	Remarks
5 VMware vSphere hosts with 4 VMs each	5 Virtualization monitors	Will monitor host with 'In-N-Out' monitoring of guests
For external monitoring of servers	1 External monitor for the default external agent on the eG manager	One monitor per external agent
Total number of monitors required = 6 Premium monitors		

8. In the example above, if I want to monitor the application that is executing on each VM as well, then what would be my license requirement?

Component	Monitors Required	Remarks
5 VMware vSphere hosts with 4 VMs	5 Virtualization monitors	Will monitor host with 'In-N-Out'

each		monitoring of guests
Applications operating on 20 VMs (5 vSphere servers * 4 VMs each)	20 Application monitors	One monitor per VM
For external monitoring of servers	1 External monitor for the default external agent on the eG manager	One monitor per external agent
Total number of monitors required = 26 Premium monitors		

9. If I want to perform 'In-N-Out' monitoring of a VMware vSphere server and the 20 virtual desktops it hosts, how many monitors would I require?

Component	Monitors Required	Remarks
1 VMware vSphere host with 20 virtual desktops	1 Virtualization monitor	Will monitor host with 'In-N-Out' monitoring of guests
For external monitoring of servers	1 External monitor for the default external agent on the eG manager	One monitor per external agent
Total number of monitors required = 2 Premium monitors		

10. What application types does user/VM licensing cover?

    User/VM licensing can be used for the following application/virtualization types in eG Enterprise: Citrix XenApp, Microsoft RDS server, 2x Terminal server, VMware Horizon RDS, VMware vSphere VDI, Citrix XenServer – VDI, Microsoft Hyper-V – VDI, RHEV Hypervisor– VDI, Nutanix Acropolis VDI, Oracle VirtualBox, and Cloud Desktop.

11. What about other application types?

    All application types, other than the ones mentioned in the response to question 10 above, will use the server-based licensing model only.

12. Can I use a mix of user/VM and server-based licensing in my environment?

    Yes, you can. You can have the Citrix XenApp / RDS / hypervisor (hosting virtual desktops) / cloud desktop components in your environment managed using user/VM licensing and all other applications managed using server-based licensing.

13. Can I have some XenApp servers governed by user/VM licensing and some others using the server-based model?

No, this is not possible. If use/VM licensing is enabled, then all Citrix XenApp/Terminal/VDI/cloud desktop components that are managed in your environment will use this licensing model only.

14. Can I monitor the XenApp servers using user/VM-based licensing and the VDI servers using the server-based model?

    No, this is not possible. Once your eG installation enables the **User/VM Licensing** model, it automatically applies to all the managed Citrix XenApp/Terminal/hypervisor (hosting virtual desktops)/cloud desktop components in your environment.

15. Can I use a mix of named user/VM and concurrent user/VM licensing in my environment?

    No, you cannot. At any given point in time, only one user/VM-based licensing option should be in use in the environment.

16. I have managed a few Exchange servers in my environment. Later, I virtualized the Exchange servers, and enabled the user/VM-based licensing capability of my eG installation. Will this licensing model apply to the Exchange servers as well?

    No, it will not. The Exchange servers will continue to consume premium monitor licenses.

17. Can a single eG manager handle both user/VM-based licenses and server-based licenses?

    Yes. A single eG manager is capable of handling a mix of user/VM-based and server-based licenses.

18. How do I know which type of user/VM-based licensing is enabled for my eG installation?

    To know which type of user/VM-based licensing – named user/VM or concurrent user/VM – is enabled for your eG installation, do the following:

    - Login to the eG administrative interface.
    - Follow the Users -> License Usage Overview menu sequence.
    - When Figure 5 appears, scroll down to view the license usage section. In this section, if you find a **Named Users** entry (as indicated by Figure 4.1), with a positive, non-zero value in the **ALLOWED** column, it is a clear indicator that the named user/VM licensing is enabled for your eG installation. On the other hand, if you find a **Concurrent Users** entry, with a positive, non-zero value in the **ALLOWED** column, it indicates that concurrent user/VM licensing is enabled.
    - If you do not find such an entry in the license usage section, you can be rest assured that the

user/VM licensing capability is not enabled for your eG installation.

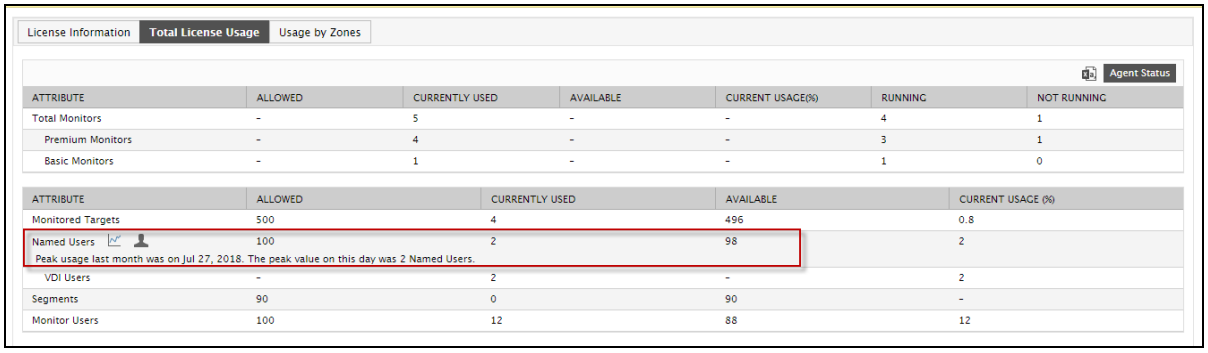

Figure 4.1: The Named Users entry in the LICENSE USAGE section

19. What happens once the named user/VM licensing capability is enabled?

    If the **Named User /VM**license is enabled, then at the end of every day, the eG Enterprise system automatically computes the following:

    - The total number of '**unique users** who accessed any of the servers, virtual desktops (in the case of hypervisors hosting VDI), and cloud hosted desktops over the last 90 day period;
    - The total number of **unique powered-on VMs**running on the hypervisor /cloud components to which no user has logged in during the last 90 days;

    The total count of users and VMs is then stored in the eG backend.

20. Can I detect a potential named user/VM license violation, before it occurs?

    Yes, you can. For this, you need to access the **Total License Usage** tab page of of the **LICENSE INFORMATION** page in the eG admin interface (see Figure 4.2). To access this page, click on the Users -> License Usage Overview. Figure 4.2 will then appear.

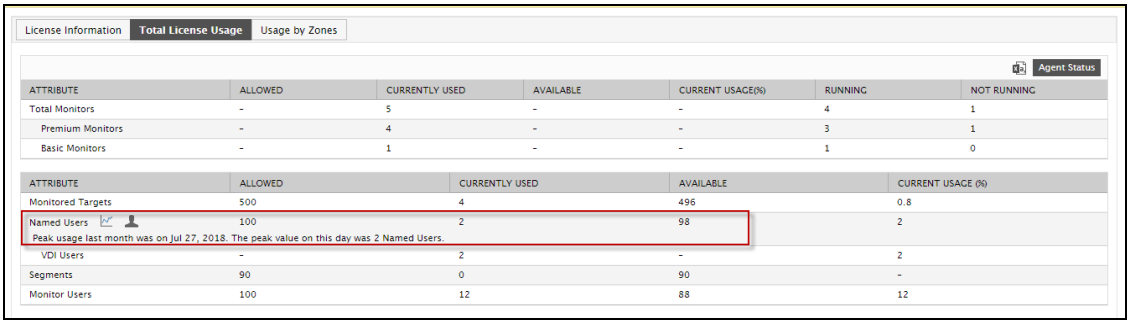

Figure 4.2: Tracking named user license usage

The license usage of eG Enterprise for this installation section helps you continuously track named user license usage and proactively detect a potential violation. This section reveals the maximum number of **Named Users/VMs** that the eG installation allows, and also reports the number and percentage of named user/VM licenses that are currently utilized. By comparing the **ALLOWED** limit with the count of **CURRENTLY USED** named user/VM licenses, you can quickly figure out if license usage is optimal or is close to exhaustion. For instance, from Figure 4.2 above, you can easily infer that 2 out of the 100 named user/VM licenses granted to an eG installation have been used up - this implies that only 2% of the licenses are in use. Moreover, you can quickly drill down from this section to identify the precise users who are consuming the named user license, and the types of components (they are accessing. For that, click on the 'user' icon alongside the label **Named Users/VMs** in Figure 4.2. Figure 4.3 will then appear, where the users will be listed grouped by the component-types they are accessing.

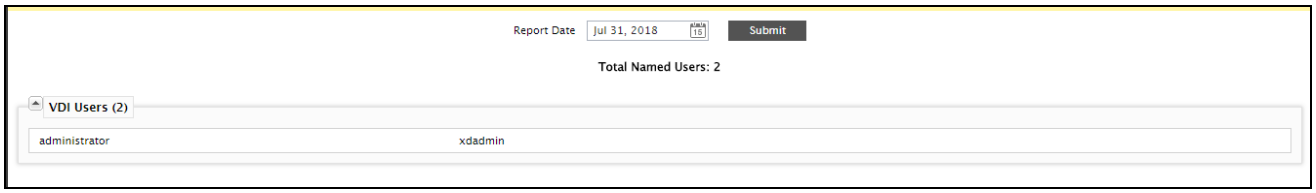

Figure 4.3: Users consuming named user licenses

You can also track how the named user/VM licenses are used per day by clicking the graph icon against **Named Users/VMs** in Figure 4.2. Figure 4.4 will then appear.

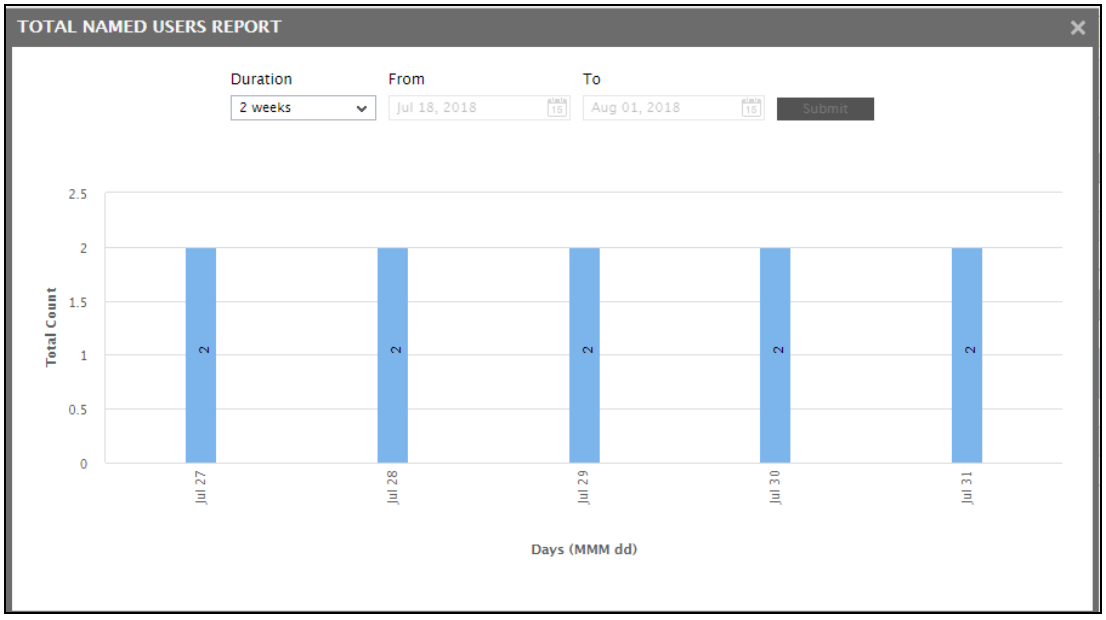

Figure 4.4: The graph depicting daily usage of the Named User licenses

21. What happens when the named user/VM license is violated?

If the **Named User/VM** license is enabled, then at the end of every day, the eG Enterprise system automatically computes the following:

- The total number of '**unique users** who accessed any of the servers, virtual desktops (in the case of hypervisors hosting VDI), and cloud hosted desktops over the last 90 day period;
- The total number of **unique powered-on VMs**running on the hypervisor /cloud components to which no user has logged in during the last 90 days;

Every day, eG Enterprise computes the total count of unique users/VMs and stores this count in the eG backend. The solution then checks the values so stored in the last 14 days for violations. When performing this check, if the solution finds that the total number of unique users/VMs on any day during the last 14 days exceeds the licensed number of **Named Users/VMs**, then a license violation is registered. If the solution finds that such a violation has occurred only once during the last 14 days, then the next time you log into the eG management console, the following message will appear warning you of the consequences of a continued violation:

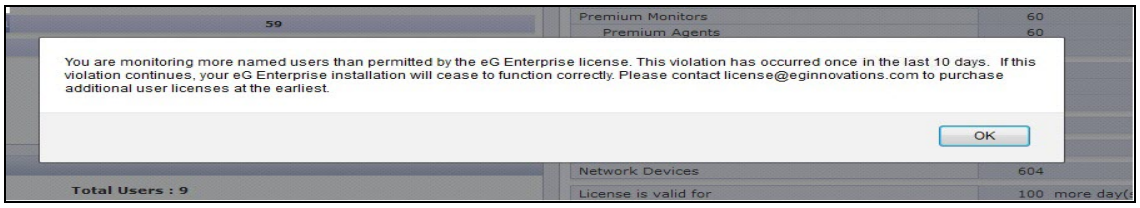

Figure 4.5: The warning message that appears if the Named User license is violated once in the last 14 days

A similar warning message (as depicted by Figure 4.5) will appear for every subsequent violation that is detected in the last 14 days, till the sixth violation. However, if the **Named User/VM** license is violated for the seventh time around in 14 days, any subsequent attempt to login to the eG management console will result in the following message:

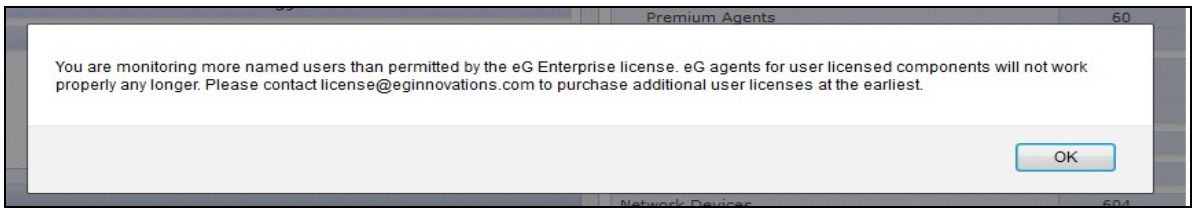

Figure 4.6: The message that appears when the Named User license is violated thrice in 7 days

Within 5 minutes of detection of the seventh violation (in 14 days), the eG agents will stop monitoring all managed **Thin Client**, hypervisor (hosting virtual desktops), and cloud desktop components.

Moreover, you will not be able to add/manage any additional components of such types until you obtain additional **Named User/VM** licenses.

If any of these messages pop-up when you login to the eG management console, then, you can navigate to the **TOTAL LICENSE USAGE** page to view more details of the violation.

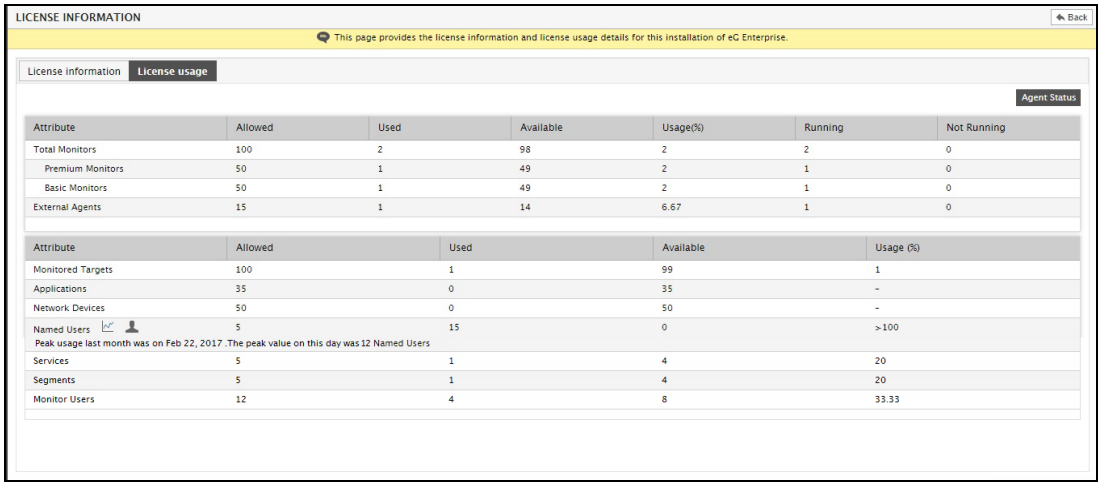

Figure 4.7: The LICENSE USAGE section revealing a license violation

In the example of Figure 4.7, you can see that while only **5** named users/VMs were **ALLOWED** by the eG license, **15** unique users/VMs have actually been detected in the thin client/VDI/cloud desktop components during the last 90 days. Since the environment is supporting more than the allowed number of distinct users/VMs, the **USAGE (%)** has been automatically set to **<100** in the case of this example (see Figure 4.7).

22. If the user/VM license is violated for the seventh time in 14 days, then, do all tests mapped to the managed thin client, VDI, and cloud desktop components stop running automatically?

    No. The eG agents will stop executing the following tests if 7 out of 14 records report violations.

    - The application-level tests mapped to the managed Citrix XenApp, Microsoft RDS server, 2x Terminal server, VMware Horizon RDS servers;
    - All the inside-view tests of the managed VMware vSphere VDI, Citrix XenServer – VDI, Microsoft Hyper-V – VDI, RHEV Hypervisor– VDI, Nutanix Acropolis VDI, Oracle VirtualBox, and Cloud Desktop components;
    - A few outside-view tests of the managed VMware vSphere VDI, Citrix XenServer – VDI, Microsoft Hyper-V – VDI, RHEV Hypervisor– VDI, Nutanix Acropolis VDI, Oracle VirtualBox components.

This implies that the host-level tests of these components will continue to run and report metrics.

23. How soon will components start reporting metrics once additional named user/VM licenses are applied?

    If eG agents had stopped monitoring the managed **Thin Client**, **VDI**, and cloud desktop components owing to a **Named User/VM** license violation, then, these agents will start monitoring the above-mentioned components within 5-10 minutes of the deployment of a new license allowing additional **Named Users/VMs**.

24. What happens once the concurrent user/VM licensing capability is enabled?

    If the **Concurrent User/VM** license is enabled, then at configured intervals (default: 30 minutes), the eG manager automatically computes the following:

    - The total number of users who accessed all the managed **Thin Client** , hypervisor (hosting virtual desktops), and cloud desktop components in the environment during the last 30 minutes (by default), and;
    - The total number of powered-on VMs on the managed hypervisor (hosting virtual desktops) and cloud desktop components that have not been accessed by any user during the last 30 minutes (by default);

    The total number of concurrent users/VMs is computed and stored every 30 mins (by default) and at the end of the day, the maximum value for the day is determined.

25. What happens when the concurrent user/VM license is violated?

    If the Concurrent User/VM license is enabled, then every 30 minutes (by default), the eG manager automatically computes the total number of users/VMs on the managed **Thin Client** , hypervisor (hosting virtual desktops), and cloud desktop components in the environment in the last 30 minutes, and stores this value in the eG backend. At the end of the day, these values are compared and the maximum value for the day is determined. If the maximum number of concurrent users/VMs on any day during the last 14 days exceeds the licensed number of **Concurrent Users/VMs**, then a license violation is registered. If the eG manager finds that such a violation has occurred only once during the last 14 days, then the next time you log into the eG management console, a message will appear warning you of the consequences of a continued violation.

    A similar warning message will appear for every subsequent violation that is detected in the last 14 days, till the sixth violation. However, if the **Concurrent User/VM** license is violated for the seventh time in 14 days, any subsequent attempt to login to the eG management console will result in a

message that informs you of the violation and explains that thin client, VDI, and cloud deskotp components will no longer be monitored by the eG agents.

Within 5 minutes of detection of the seventh violation (in 14 days), the eG agents will stop monitoring all managed **Thin Client**, VDI, and cloud desktop components. Moreover, you will not be able to add/manage any additional components of such types until you obtain additional **Concurrent User/VM** licenses.

26. Can I detect a potential concurrent user/VM license violation, before it occurs?

Yes, you can. For this, you need to access the **Total License Usage** tab page of the **LICENSE INFORMATION** page of the eG admin interface (see Figure 4.8). To access this page, click on the Users -> License Usage Overview menu sequence in the eG admin interface. Then, click on the **Total License Usage** tab page of the **LICENSE INFORMATION** page that appears.Figure 4.8 will then appear.

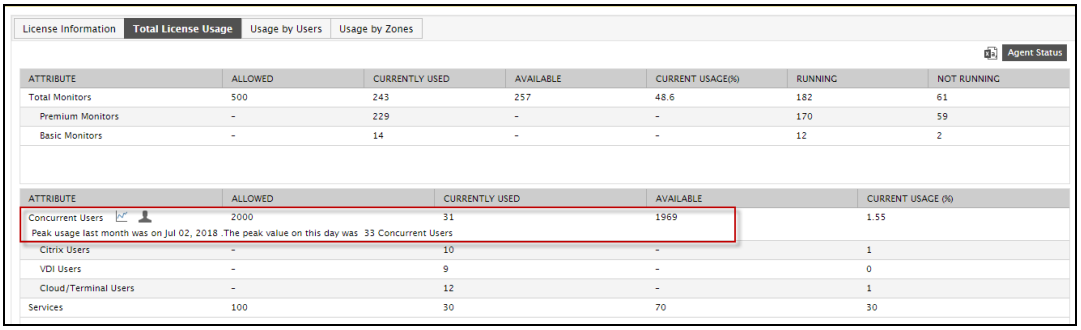

Figure 4.8: Tracking concurrent user license usage

The license usage of eG Enterprise for this installation section helps you continuously track concurrent user/VM license usage and proactively detect a potential violation. This section reveals the maximum number of **Concurrent Users/VMs** that the eG installation allows, and also reports the number and percentage of concurrent user/VM licenses that are currently utilized. By comparing the **ALLOWED** limit with the count of **CURRENTLY USED** concurrent user/VM licenses, you can quickly figure out if license usage is optimal or is close to exhaustion. For instance, from Figure 4.8 above, you can easily infer that 31 out of the 2000 concurrent user/VM licenses granted to an eG installation have been used up - this implies that only 1.55% of the licenses are in use. Moreover, you can quickly drill down from this section to identify the precise users that are consuming the concurrent user license, and the types of components. For that, click on the 'user' icon alongside the label **Concurrent Users/VMs** in Figure 4.8. Figure 4.9 will then appear, where the users will be listed grouped by the component-types they are accessing.

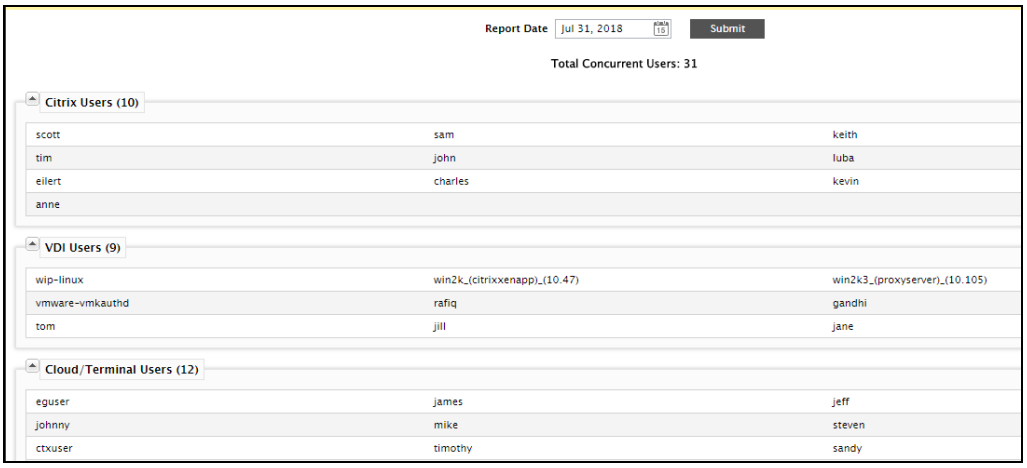

Figure 4.9: Users consuming concurrent user licenses

You can also track how the concurrent user/VM licenses are used per day by clicking the graph icon against **Concurrent Users/VMs** in Figure 4.8. Figure 4.10 will then appear.

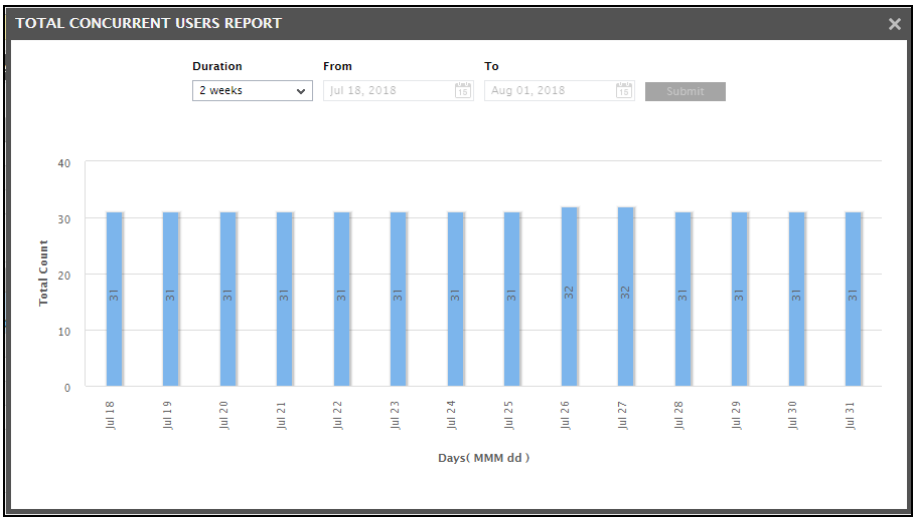

Figure 4.10: The graph depicting daily usage of the Named User licenses

27. If a single user logs into three different servers, what would be the unique user count that eG reports for user/VM-based licensing?

    By default, if a single user accesses three different servers, eG Enterprise will report the unique user count as 3. This default behavior is governed by the **UniqueUserNameAcrossTypes** flag in the **[User_cert]** section of the **eg_ui.ini** file (in the <EG_INSTALL_DIR>\manager\config directory). By default, this flag is set to **No**. If you set it to **Yes**, then, regardless of the number of servers a single user accesses, eG Enterprise will report unique user count as 1.

28. If the user ‘eguser’ logs into a server, once as ‘eguser’ and another time as ‘mas\eguser’ (where

'mas' is the domain name), what would be the unique user count that eG reports for user/VM-based licensing?

By default, if the same user logs into a server twice – once with and once without a domain name prefix - eG Enterprise will treat each login as if it was performed by a different user and report the unique user count as 2. This default behavior is governed by the **ExcludeDomainName** flag in the **[User_cert]** section of the **eg_ui.ini** file (in the <EG_INSTALL_DIR>\manager\config directory). By default, this flag is set to No. If you set it to Yes, then, eG Enterprise will disregard the domain name prefix and will treat both logins as if they were performed by the same user. In this case therefore, the unique user count will be 1.

About eG Innovations

eG Innovations provides intelligent performance management solutions that automate and dramatically accelerate the discovery, diagnosis, and resolution of IT performance issues in on-premises, cloud and hybrid environments. Where traditional monitoring tools often fail to provide insight into the performance drivers of business services and user experience, eG Innovations provides total performance visibility across every layer and every tier of the IT infrastructure that supports the business service chain. From desktops to applications, from servers to network and storage, from virtualization to cloud, eG Innovations helps companies proactively discover, instantly diagnose, and rapidly resolve even the most challenging performance and user experience issues.

eG Innovations is dedicated to helping businesses across the globe transform IT service delivery into a competitive advantage and a center for productivity, growth and profit. Many of the world's largest businesses use eG Enterprise to enhance IT service performance, increase operational efficiency, ensure IT effectiveness and deliver on the ROI promise of transformational IT investments across physical, virtual and cloud environments.

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