Granicus Performance Accelerator

The Performance Accelerator is a software module designed to support high volume internal streaming without straining internet bandwidth. Viewing requests are intelligently routed to the most logical network location (usually the network core).

The Performance Accelerator is required when:
• Demand exceeds the 50 concurrent internal stream limit of the Granicus Encoding Appliance
• Internal distribution is desired for more than two Granicus Encoding Appliances
• The Granicus Voting System will be used in combination with the Granicus Encoding Appliance

The Performance Accelerator software module can be delivered in two ways:
• Granicus-provided hardware
• Client-provided hardware or virtual machine

Performance Accelerator: How it works

The Performance Accelerator becomes the central distribution point for all live and on-demand streams. For live streaming, the Performance Accelerator pulls a single stream from each Granicus Encoding Appliance for redistribution to internal viewers. For on-demand streaming, the Performance Accelerator stores a copy of each archive that can be streamed to internal users. The archives maintained on the Performance Accelerator are automatically synchronized with Granicus Cloud Services.

Granicus can install multiple Performance Accelerators if needed (for example, if you have multiple networks, multiple locations, or heavy usage).

Intelligent Routing

When a viewer clicks a link to access a stream, Granicus servers examine the public IP address of the request. Addresses that are identified as internal network viewers are transparently redirected to the Performance Accelerator.

All others are treated as public viewers and receive their content directly from Granicus Cloud Services.

Internal Streaming Methods

The Performance Accelerator delivers all content via unicast streaming. Each internal viewer receives a single stream directly from the Performance Accelerator. Bandwidth utilization is calculated by taking the bit rate of the stream multiplied by the anticipated number of streams. Thus, 100 concurrent streams at 650Kbps equal 65Mbps of network
traffic. The Performance Accelerator must be able to communicate with your WiFi network in order to stream to local wireless devices.

Network Location, Firewall, and Security

The Performance Accelerator is normally installed at the core of the network in a location that is accessible by internal viewers. The Performance Accelerator pulls a single stream and receives video files that are recorded by Granicus Encoding Appliances on the network.

Network Location:

- Any location on the network accessible by internal viewers
- Must have network access to all Granicus Encoding Appliances

The following tables and diagram describe the network ports, connection direction, and communication protocols used by the Performance Accelerator. If the direction of the connection is outbound, the port indicates the port number of the application’s remote host connection. If the direction of the connection is inbound, port indicates the port number of the application’s local host listening for incoming connections.

Ports, Directions, and Protocols

<table>
<thead>
<tr>
<th>Description</th>
<th>Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>80/443/Outbound/TCP</td>
<td>To Granicus, for sending application requests</td>
</tr>
<tr>
<td>80/85/443/Inbound/TCP</td>
<td>From users within your internal network and for archive transfers from the Granicus Encoding Appliance</td>
</tr>
<tr>
<td>80/443/Outbound/TCP</td>
<td>To LogMeIn.com, used for LogMeIn remote access, patching and monitoring; IP information below</td>
</tr>
<tr>
<td>80/Outbound/TCP</td>
<td>To *.microsoft.com and *.adobe.com for software updates</td>
</tr>
<tr>
<td>80/443/1935</td>
<td>From users within your internal network, to view live and archive streams</td>
</tr>
</tbody>
</table>
1935/Outbound/TCP  To Granicus, for H.264 live push streaming utilizing RTMP  Mandatory

1935/Inbound/TCP  From Granicus Encoding Appliance for H.264 live push streaming utilizing RTMP  Mandatory

7777/Outbound/TCP  To Granicus, for application installation and updating  Mandatory

To the Granicus Encoding Appliance, required to “pull” the live stream (may not be needed for many configurations – ask your deployment project manager for details)  Can be changed

IP Address Ranges

In order to add the Performance Accelerator to your network, you must provide Granicus with the private IP address to be used for it.

Granicus IP address ranges are shown below:

Granicus IP Address Ranges
- 207.7.154.0/24
- 209.237.241.0/24

Network Diagram

The diagram below shows how to add a Performance Accelerator, Granicus Encoding Appliance, and LiveManager to your Granicus system.

Download this network diagram as a PDF
Granicus-Provided Hardware Physical Specifications

Granicus provides a Dell PowerEdge R420 server to run the Performance Accelerator software. The server runs a single Intel Xeon E5-2420 1.9 GHz processor with 4GB of memory. It is a RackMount server that will mount in the majority of 4-post racks. It requires 1U (1.75") of rack space, is 24.69" deep, and weighs 35lbs. Optional 2-post rail kits are available.

Ideally, installation will be in a secure, climate controlled environment.

Server

- Dell PowerEdge R420

Processor

- Single Intel Xeon E5-2420 1.9 GHz

Memory

- 4GB Memory (2x2GB), 1333MHx Single Ranked UDIMMS

Dimensions

- 1.69"H x 24.69"D x 17.09" W
- 1U High
Mounting

- Rack Mount with included sliding rail kit
- 2-Post Rail Kit (Optional)

Weight

- 44lbs

Front of the Performance Accelerator

Power Requirements

Power requires dual 110volt NEMA 5-15 plugs. Power under load is 182 Watts and 1.7 Amps.

- Redundant 550W Power Supplies
- (2) 120volt NEMA 5-15 plugs
- Power under load is 182 Watts and 1.7 Amps

Ideally, installation will be to an uninterruptable power supply (UPS), supplied by you. A UPS such as the Dell Rack 1000W UPS (Part #330-7518) will provide approximately 34 minutes of run time. Performance Accelerator functionality requires the device be powered on at all times.

Storage

The Performance Accelerator comes with 2-1Tb hard drives running a RAID 1 configuration. Standard encoding bit rates use approximately 1 GB of disk space for every 2 hours of content. Granicus Cloud Storage is unlimited for all meeting and non-meeting content.

- 1 Tb
- Approximately 2000 hours of standard bit rate video

Client-Provided Hardware or Virtual Machine Specifications

You may supply your own hardware or virtual environment for the Performance Accelerator. Machines must meet specific minimum performance, storage, and operating system requirements in order to successfully install and run the software.
Processor

- 2 GHz dual-core or better
- Maximum of 16 processors

Memory

- Minimum 4GB RAM
- Minimum 2 x 750 GB disk drives (RAID 1 configuration or better)
- Content storage must be drive letter accessible
- SAN/NAS or Fiber Channel Array is acceptable

Storage

- Windows Server 2008 R2 Web, Standard or Enterprise*
- Windows Server 2012 Datacenter or Standard*
- Windows Server 2012 R2 Datacenter or Standard*
- Content storage must be drive letter accessible
- SAN/NAS or Fiber Channel Array is acceptable

Operating System

- Windows Server 2008 R2 Web, Standard or Enterprise*
- Windows Server 2012 Datacenter or Standard*
- Windows Server 2012 R2 Datacenter or Standard*
- It is best practice that Virtual Server is not a part of your domain, as this can change the configuration of your server.

Domain

- C:\Documents and Settings\All Users\ "Include subfolders"
- C:\WINDOWS\Microsoft.NET\Framework "Include subfolders"
- C:\Program Files\Granicus\ "Include subfolders"
- C:\Program Files\Adobe "Include subfolders"
- C:\Gads "Include subfolders"
- D:\GStore\ "Include subfolders"
- C:\WINDOWS\system32\inetsrv\C:\GranicusLogs
- D:\Temp\D:\Temp\ Anti-Virus

Anti-Virus

*Please note: If you are provided a physical or virtual performance accelerator, the sources/sxs directory for your operating system (Win Server 2008 R2, Win Server 2012, or Win Server 2012 R2) must be present and fully loaded in the default location. Features and Roles are added as part of the deployment process. The sources/sxs are required to install these Features and Roles.

Remote Management

Granicus will monitor, support, and maintain our software on your Performance Accelerator. Granicus will provide updates to our software components when maintenance releases become available. Other server maintenance, such as performing Windows updates and maintenance of software that is not provided by Granicus, will remain your responsibility.
Remote support, management, patching, reporting and logging are performed using LogMeIn. If other connection methods, such as a VPN connection, are required due to security policies, please discuss this with your Granicus representative. Installation of 3rd party software that is not specifically approved by Granicus may detrimentally impact the server’s performance. In extreme cases, the server may need to be reimaged to restore normal operations; in this case, a reimaging fee may be charged.

**Hardware/Software Maintenance**

When you purchase the Performance Accelerator hardware from Granicus, warranty service is available through the manufacturer. The standard warranty on new hardware covers malfunctions for 3 years. An extended warranty option is available to provide 5 years of warranty service.