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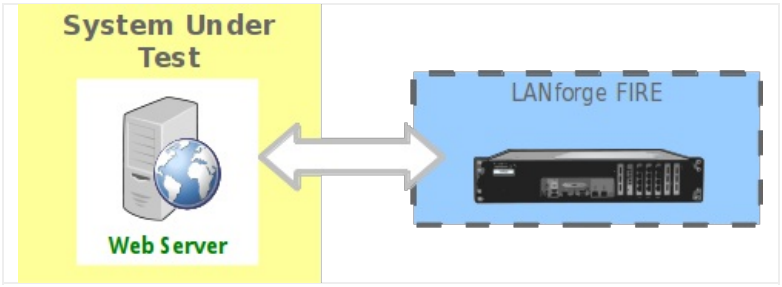
Generating Traffic to a Web Server

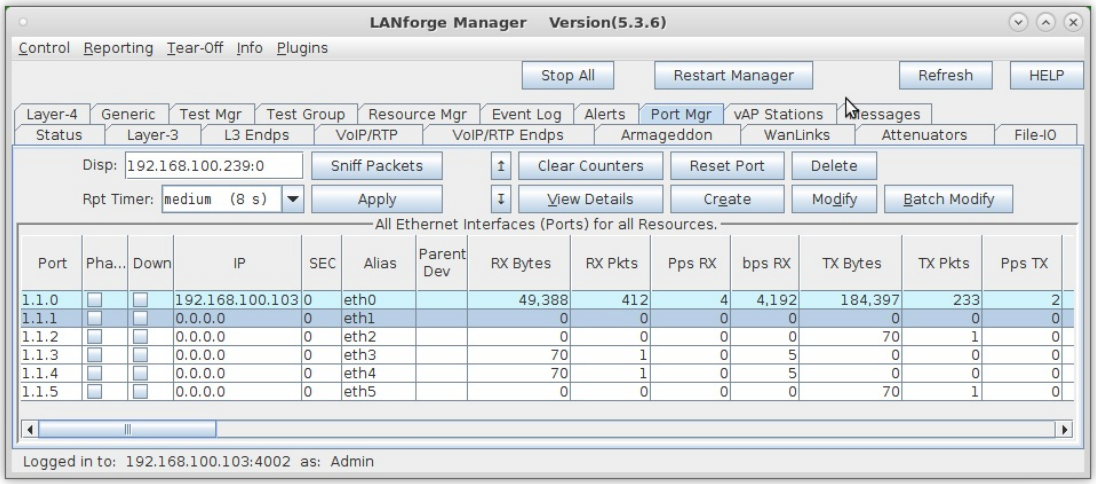
Goal: Set up and run traffic to a web server.

In this test scenario, LANforge-FIRE is used to generate traffic in the form of URL requests in order to determine the maximum number of URLs/second the web server can process.

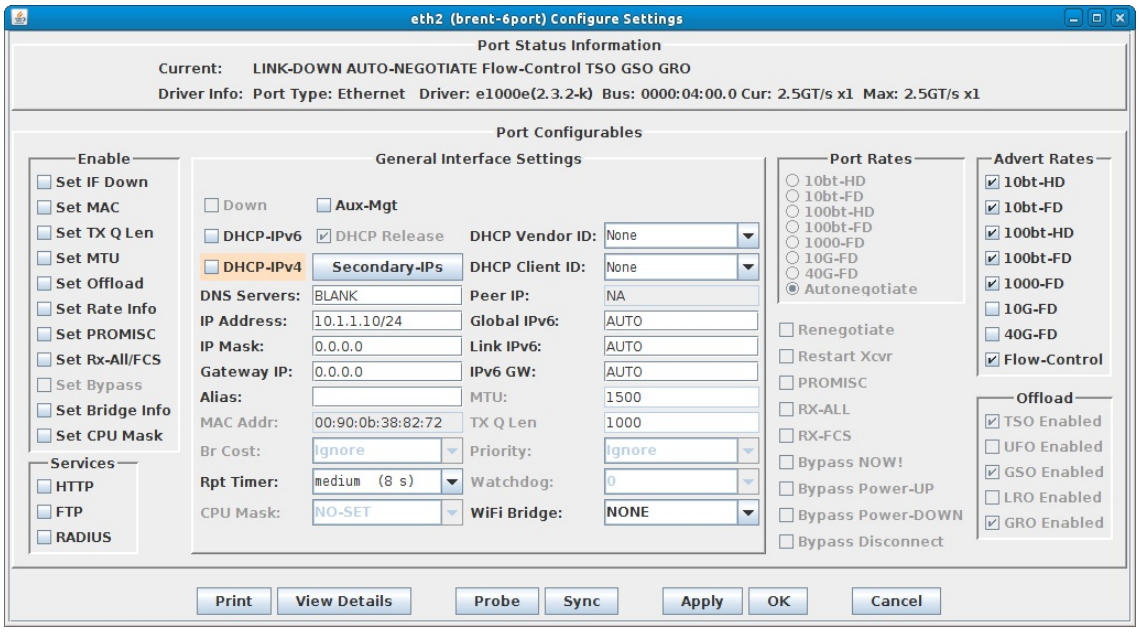
Please note that the web server used in this example is an isolated Linux system running Apache.



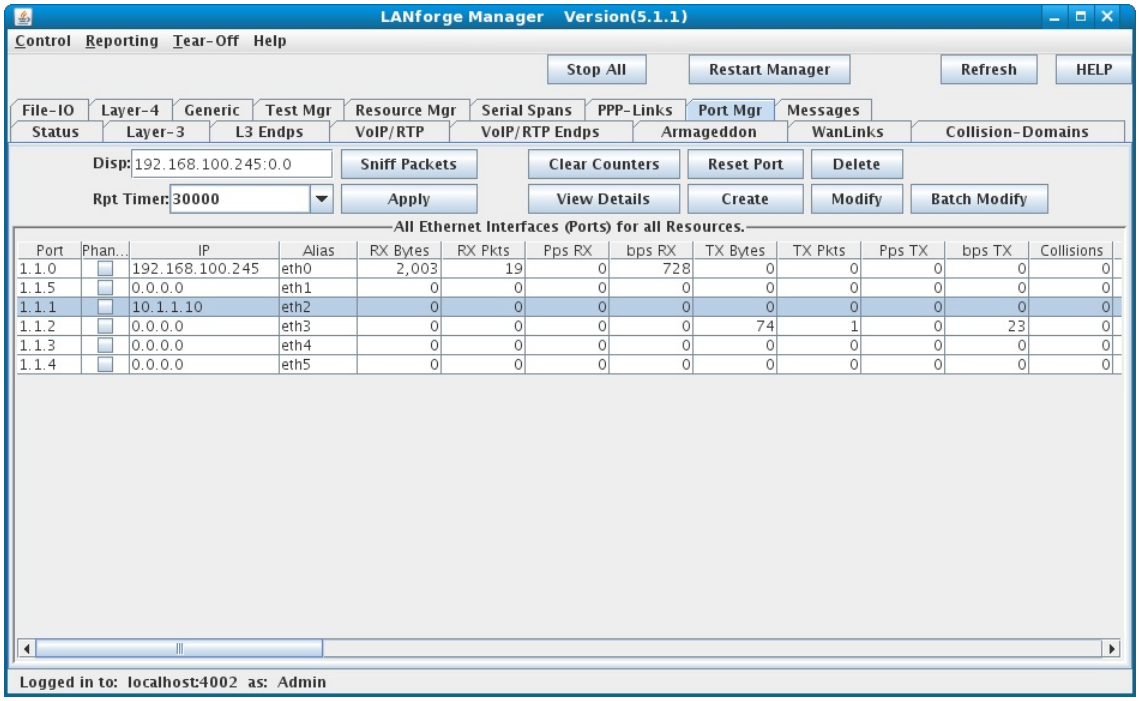
1. Connect one LANforge-FIRE port to the web server's network.
2. Set up the LANforge port so that it has a valid IP address.
   A. Go to the Port Manager



B. Modify the port connected to the web server. Set a valid network IP address and Gateway IP.



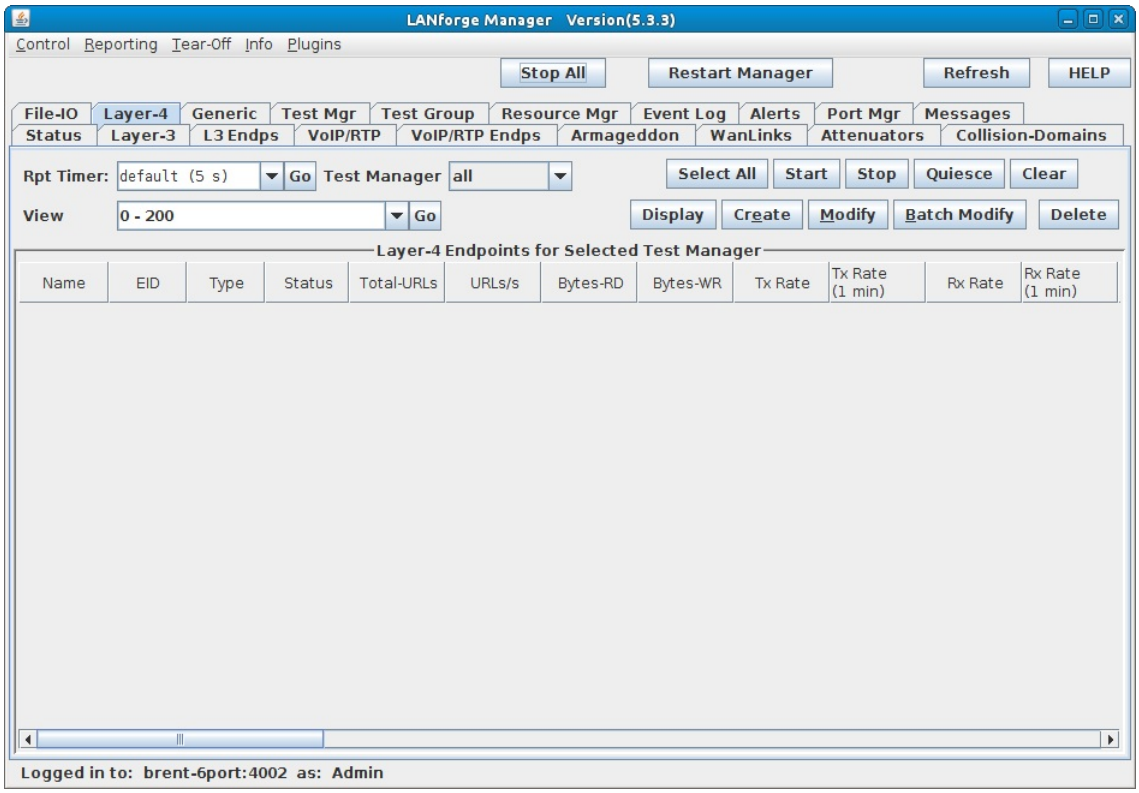
C. Verify the port configuration



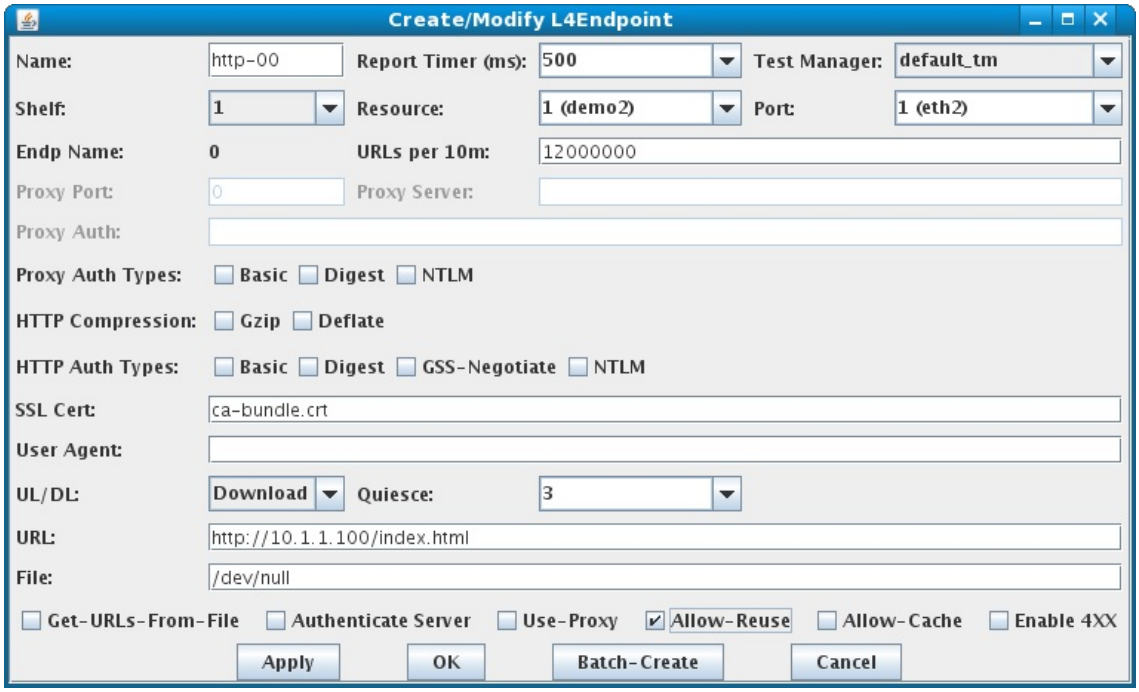
For more information see LANforge User's Guide: Ports (Interfaces)

3. Set up the URL requests.

A. Go to the **Layer 4-7** tab



B. Create a Layer 4-7 Endpoint:



A. Enter a name and select the port configured in the previous step

B. URLs per 10m should be set to around 1,200,000 which is 2,000 URLs/second

C. Leave the SSL Cert alone as we are not using it in this example

D. UL/DL should be set to Download

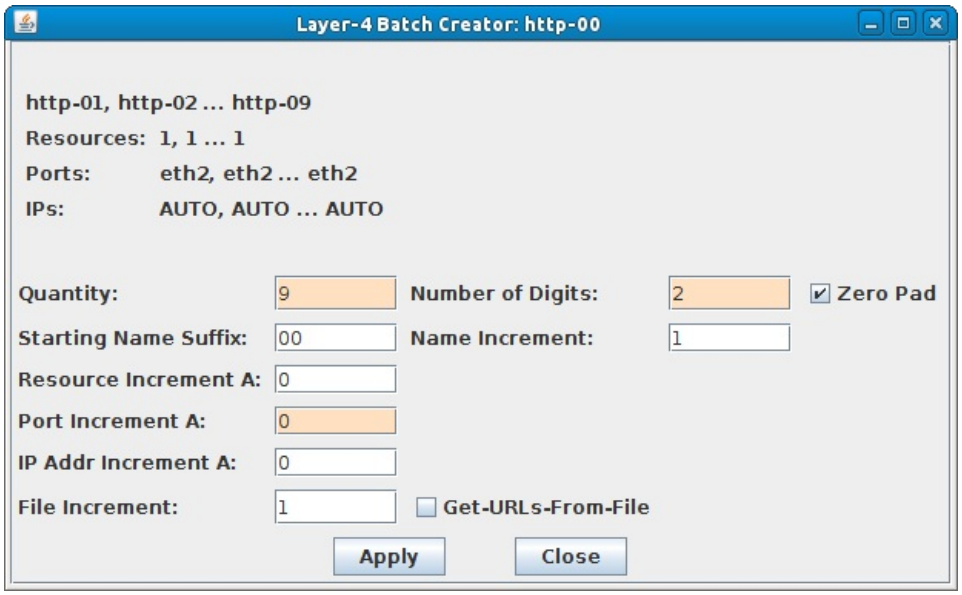
E. URL should be set to the web server's IP address and file that you wish to download. In this example, index.html is a small test file.

F. File is the designated location that the downloaded file will be stored. In this example, we use /dev/null which will essentially throw the file away so that it does not slow down the LANforge system with writing files.

G. Select the 'Allow-Reuse' checkbox to maximize the number of URL requests LANforge can make per connection

H. Click **Apply** or **OK** to create the Layer 4-7 endpoint

C. Create 9 more Layer 4-7 endpoints by opening the previously created endpoint and clicking **Batch-Create**

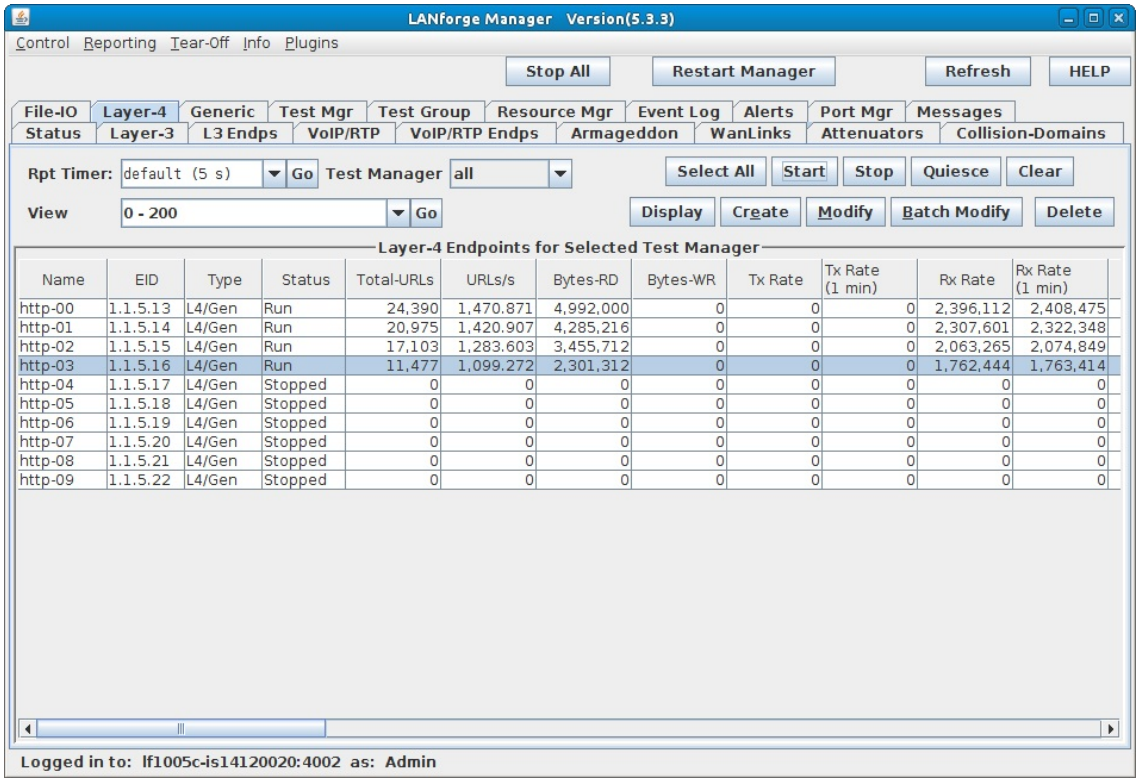


A. Set the **Quantity** to 9, **Number of Digits** to 2, and **Port Increment A** to 0. Then click **Apply**.

B. Each of the 10 Layer 4-7 Endpoints will attempt to generate 2000 URLs/second, effectively generating 20,000 URLs/second

For more information see LANforge User's Guide: Layer 4-7 Endpoints

4. Run traffic and determine web server performance.
   A. On the **Layer 4-7** tab, select one Layer 4-7 endpoint, click **Start**, then repeat for all 10 Layer 4-7 endpoints:

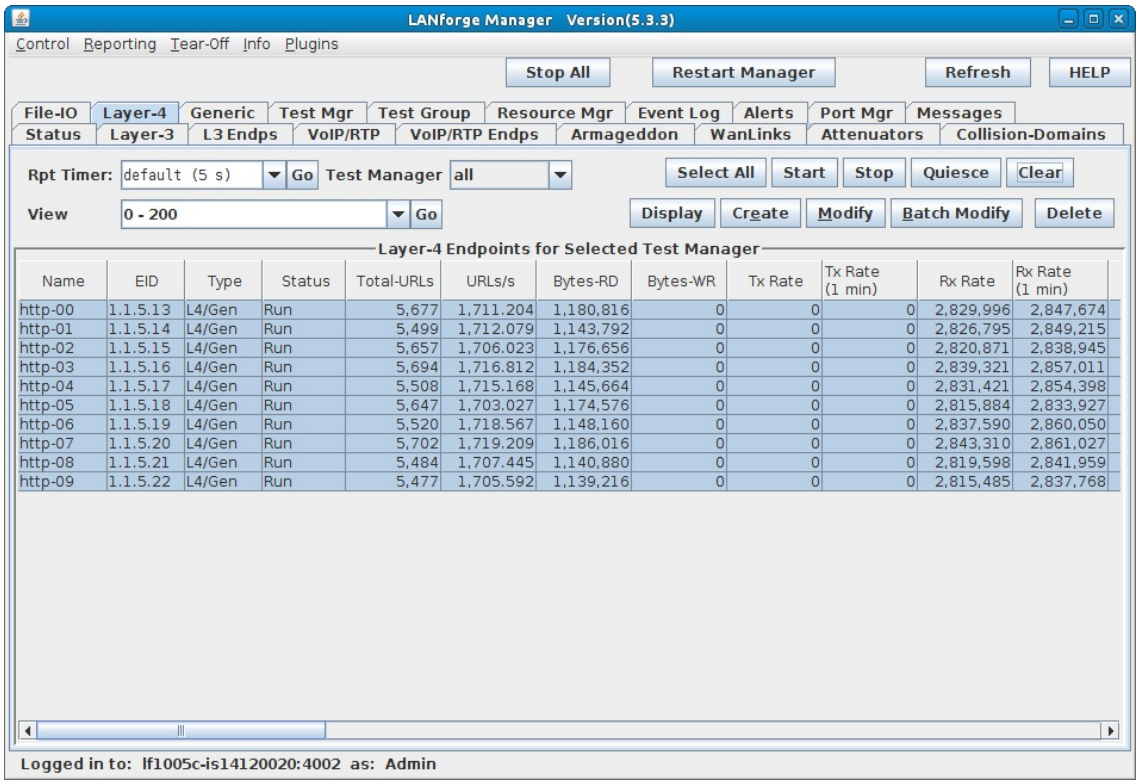


Name	EID	Type	Status	Total-URLs	URLs/s	Bytes-RD	Bytes-WR	Tx Rate	Tx Rate (1 min)	Rx Rate	Rx Rate (1 min)
http-00	1.1.5.13	L4/Gen	Run	24,390	1,470.871	4,992,000	0	0	0	2,396,112	2,408,475
http-01	1.1.5.14	L4/Gen	Run	20,975	1,420.907	4,285,216	0	0	0	2,307,601	2,322,348
http-02	1.1.5.15	L4/Gen	Run	17,103	1,283.603	3,455,712	0	0	0	2,063,265	2,074,849
http-03	1.1.5.16	L4/Gen	Run	11,477	1,099.272	2,301,312	0	0	0	1,762,444	1,763,414
http-04	1.1.5.17	L4/Gen	Stopped	0	0	0	0	0	0	0	0
http-05	1.1.5.18	L4/Gen	Stopped	0	0	0	0	0	0	0	0
http-06	1.1.5.19	L4/Gen	Stopped	0	0	0	0	0	0	0	0
http-07	1.1.5.20	L4/Gen	Stopped	0	0	0	0	0	0	0	0
http-08	1.1.5.21	L4/Gen	Stopped	0	0	0	0	0	0	0	0
http-09	1.1.5.22	L4/Gen	Stopped	0	0	0	0	0	0	0	0

      A. As each endpoint is started, the rate of URLs/second will start to converge on a rate that the web server is capable of providing. Finding the final web server performance rate is a matter of adding up the rates of all running Layer 4-7 endpoints.

      B. Several Layer 4-7 endpoints (10 in this case) are used so each endpoint can make an independently large number of URL requests without having to wait for too many replies. Each URL request is waiting for a reply from the web server, so if only one Layer 4-7 endpoint was making requests, it would spend too much time waiting for replies instead of generating more requests. Spreading the URL requests over several endpoints allows each LANforge connection to the web server to maximize its rate of URL requests.

   B. Layer 4-7 Endpoint Results:



Name	EID	Type	Status	Total-URLs	URLs/s	Bytes-RD	Bytes-WR	Tx Rate	Tx Rate (1 min)	Rx Rate	Rx Rate (1 min)
http-00	1.1.5.13	L4/Gen	Run	5,677	1,711.204	1,180,816	0	0	0	2,829,996	2,847,674
http-01	1.1.5.14	L4/Gen	Run	5,499	1,712.079	1,143,792	0	0	0	2,826,795	2,849,215
http-02	1.1.5.15	L4/Gen	Run	5,657	1,706.023	1,176,656	0	0	0	2,820,871	2,838,945
http-03	1.1.5.16	L4/Gen	Run	5,694	1,716.812	1,184,352	0	0	0	2,839,321	2,857,011
http-04	1.1.5.17	L4/Gen	Run	5,508	1,715.168	1,145,664	0	0	0	2,831,421	2,854,398
http-05	1.1.5.18	L4/Gen	Run	5,647	1,703.027	1,174,576	0	0	0	2,815,884	2,833,927
http-06	1.1.5.19	L4/Gen	Run	5,520	1,718.567	1,148,160	0	0	0	2,837,590	2,860,050
http-07	1.1.5.20	L4/Gen	Run	5,702	1,719.209	1,186,016	0	0	0	2,843,310	2,861,027
http-08	1.1.5.21	L4/Gen	Run	5,484	1,707.445	1,140,880	0	0	0	2,819,598	2,841,959
http-09	1.1.5.22	L4/Gen	Run	5,477	1,705.592	1,139,216	0	0	0	2,815,485	2,837,768

      A. After starting all 10 endpoints, and letting them run for at least 1 minute, the overall URLs/second rate converges to around 17,000 URLs/second.

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