Iguana® 6 Performance Benchmarks

TESTS CONDUCTED NOVEMBER 2017

The Iguana integration engine provides healthcare organizations of all sizes and specialities with the capabilities for high-speed, reliable processing of healthcare data.

The following tables show the performance of Iguana for a variety of interface types, across three server configurations. In each test, Iguana ran multiple channels, where each channel was sent random traffic (HTTP request, HL7 over LLP, etc.). The volume of traffic sent to each channel was randomized but capped at the numbers marked IMPS (input messages per second).

In these tests, the number of channels and IMPS were adjusted until the highest sustainable performance was reached. In other words, the instance could handle traffic at these levels indefinitely without a queue backlog. Performance numbers listed in messages per second (MPS) represent outbound traffic (HTTP responses, outbound HL7 over LLP, files written to disk, etc.) that Iguana sent in response to the input traffic.

The results demonstrate that Iguana is able to meet the high volume messaging needs of healthcare organizations today and can do so with relatively modest hardware requirements. For more information on Iguana's capabilities, contact us at sales@interfaceware.com.

HL7 Scrubber

HL7 v2 messages arrive over LLP, undergo simple text manipulation, and depart over LLP.

HARDWARE:	HARDWARE:	HARDWARE:
1 Core (Intel Xeon) **1 GB** RAM	**2 Cores** (Intel Xeon) **4 GB** RAM	**8 Cores** (Intel Xeon) **32 GB** RAM
10 Channels: **100** input messages per second	20 Channels: **200** input messages per second	20 Channels: **300** input messages per second
Performance: **859.7** messages per second	Performance: **1310.3** messages per second	Performance: **3699.6** messages per second
Avg CPU Load: **48.9%**	Avg CPU Load: **83.9%**	Avg CPU Load: **227.8%**
	Adjusted Avg CPU Load (2 Cores): **42%**	Adjusted Avg CPU Load (8 Cores): **28.5%**

HL7 Filter

HL7 v2 messages arrive over LLP and are parsed into data trees. Fields are remapped, trees are serialized into HL7 v2 and depart over LLP.

HARDWARE:	HARDWARE:	HARDWARE:
1 Core (Intel Xeon) **1 GB** RAM	**2 Cores** (Intel Xeon) **4 GB** RAM	**8 Cores** (Intel Xeon) **32 GB** RAM
10 Channels: **75** input messages per second	10 Channels: **100** input messages per second	20 Channels: **200** input messages per second
Performance: **638.7** messages per second	Performance: **830.5** messages per second	Performance: **2893.8** messages per second
Avg CPU Load: **76.1%**	Avg CPU Load: **106%**	Avg CPU Load: **350.7%**
	Adjusted Avg CPU Load (2 Cores): **53%**	Adjusted Avg CPU Load (8 Cores): **43.8%**

HL7 To JSON

HL7 v2 messages arrive over LLP and are parsed into data trees. Fields are remapped, trees are serialized into JSON and are POSTed to a web service over HTTP.

HARDWARE:	HARDWARE:	HARDWARE:
1 Core (Intel Xeon) **1 GB** RAM	**2 Cores** (Intel Xeon) **4 GB** RAM	**8 Cores** (Intel Xeon) **32 GB** RAM
10 Channels: **75** input messages per second	10 Channels: **150** input messages per second	20 Channels: **300** input messages per second
Performance: **676.7** messages per second	Performance: **1210** messages per second	Performance: **3993.4** messages per second
Avg CPU Load: **72.8%**	Avg CPU Load: **123.4%**	Avg CPU Load: **408.7%**
	Adjusted Avg CPU Load (2 Cores): **61.7%**	Adjusted Avg CPU Load (8 Cores): **51.1%**

Splitter

HL7 v2 messages arrive over LLP. Each is copied and sent over LLP to 5 separate destinations.

HARDWARE:	HARDWARE:	HARDWARE:
1 Core (Intel Xeon) **1 GB** RAM	**2 Cores** (Intel Xeon) **4 GB** RAM	**8 Cores** (Intel Xeon) **32 GB** RAM
5 Channels:	10 Channels:	15 Channels:
125 input messages per second	125 input messages per second	150 input messages per second
Performance:	Performance:	Performance:
2364.3 messages per second	3972.3 messages per second	7449.3 messages per second
Avg CPU Load:	Avg CPU Load:	Avg CPU Load:
45.1%	102.6%	132.6%
	Adjusted Avg CPU Load (2 Cores):	Adjusted Avg CPU Load (8 Cores):
	51.3%	16.6%

Web Service

Requests arrive as JSON over HTTP. Each is parsed into a node tree, serialized as HL7 v2, and departs over LLP.

HARDWARE:	HARDWARE:	HARDWARE:
1 Core (Intel Xeon) **1 GB** RAM	**2 Cores** (Intel Xeon) **4 GB** RAM	**8 Cores** (Intel Xeon) **32 GB** RAM
10 Channels: **100** input messages per second	10 Channels: **150** input messages per second	25 Channels: **250** input messages per second
Performance: **805.7** messages per second	Performance: **1285.7** messages per second	Performance: **2875.4** messages per second
Avg CPU Load: **68%**	Avg CPU Load: **135.3%**	Avg CPU Load: **299.7%**
	Adjusted Avg CPU Load (2 Cores): **67.6%**	Adjusted Avg CPU Load (8 Cores): **37.5%**

Multithreaded Web Service

Each web server channel is running 5 threads of execution. Requests arrive as JSON over HTTP. Each request is parsed into a node tree, serialized as HL7 v2, and departs over LLP.

HARDWARE:	HARDWARE:	HARDWARE:
1 Core (Intel Xeon) **1 GB** RAM	**2 Cores** (Intel Xeon) **4 GB** RAM	**8 Cores** (Intel Xeon) **32 GB** RAM
10 Channels: 100 input messages per second	10 Channels: 200 input messages per second	10 Channels: 600 input messages per second
Performance: 843.8 messages per second	Performance: 1637.6 messages per second	Performance: 3741.2 messages per second
Avg CPU Load: 60.5%	Avg CPU Load: 138.8%	Avg CPU Load: 341.1%
	Adjusted Avg CPU Load (2 Cores): 69.4%	Adjusted Avg CPU Load (8 Cores): 42.6%

Text Encoding

Messages arrive as HL7 v2 over LLP and are parsed into node trees. Base-64 encoded string data (approx. 50KB) is extracted and unencoded, providing binary data that is itself text encoded in UTF-8. The text is re-encoded in windows-1252, then the resulting byte sequence is base-64 encoded and inserted into a new node tree. The tree is serialized as HL7 v2, and departs over LLP.

HARDWARE:	HARDWARE:	HARDWARE:
1 Core (Intel Xeon) **1 GB** RAM	**2 Cores** (Intel Xeon) **4 GB** RAM	**8 Cores** (Intel Xeon) **32 GB** RAM
5 Channels:	10 Channels:	15 Channels:
25 input messages per second	25 input messages per second	25 input messages per second
Performance:	Performance:	Performance:
108 messages per second	222.1 messages per second	356.4 messages per second
Avg CPU Load:	Avg CPU Load:	Avg CPU Load:
45.9%	122.4%	116.5%
	Adjusted Avg CPU Load (2 Cores):	Adjusted Avg CPU Load (8 Cores):
	61.2%	14.6%

File Extraction and Compression

Messages arrive as HL7 v2 over LLP and are parsed into node trees. Base-64 encoded string data (approx. 1MB) is extracted and unencoded, providing binary data that is itself a 750KB PDF document. The PDF is compressed using ZIP, then the resulting byte sequence is base-64 encoded and inserted into a new node tree. The tree is serialized as HL7 v2, and departs over LLP.

HARDWARE:	HARDWARE:	HARDWARE:
1 Core (Intel Xeon) **1 GB** RAM	**2 Cores** (Intel Xeon) **4 GB** RAM	**8 Cores** (Intel Xeon) **32 GB** RAM
5 Channels: 25 input messages per second	10 Channels: 25 input messages per second	10 Channels: 50 input messages per second
Performance: 114.2 messages per second	Performance: 213.3 messages per second	Performance: 425.8 messages per second
Avg CPU Load: 53.3%	Avg CPU Load: 87.2%	Avg CPU Load: 91.9%
	Adjusted Avg CPU Load (2 Cores): 43.6%	Adjusted Avg CPU Load (8 Cores): 11.5%

About iNTERFACEWARE®

Founded in 1997, iNTERFACEWARE's mission is to deliver the fastest means to transfer data between disparate healthcare systems. Globally, over 800 healthcare providers and vendors rely on iNTERFACEWARE's KLAS-rated Iguana integration engine to improve their access to critical patient, administrative, and financial information.

www.interfaceware.com

About Iguana®

Designed specifically for healthcare, the Iguana integration engine is used to exchange information between incompatible systems and applications. Featuring a patented development environment, Iguana enables rapid, reliable integration for healthcare providers and vendors. With tens of thousands of installations worldwide, Iguana is used to integrate with EMRs, billing systems, medical devices, PACS systems, health information exchanges, and much more.

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