



# LOAD MULTIPLIER

## Load Multiplier Pvt. Ltd.

LG Floor, DD3, Diamond District, ISRO Colony, Domlur, Old Airport Road, BANGALORE – 560008, INDIA

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## About Load Multiplier

The Load Multiplier is a highly scalable testing solution catering to the **Load** testing, **Performance** testing, **Capacity** testing and **Stress** testing need in the areas of VoIP, VVoIP, Web, WebRTC, IP based Protocols, Custom protocols, Socket.IO, etc. It supports any text or binary based custom or proprietary protocol testing. Additionally, this tool can also be used for **Functionality** testing as well as **Test Automation**.

### CAPABILITIES

The Load Multiplier can load test : -

**Any application over HTTP/ JSON / XML / Websites**

**WebRTC / ICE based products**

**SIP / IMS / PTT / MCPTT / XML based products**

**Products based on custom protocols (text/binary)**

**Protocols:**

1. HTTP, HTTPS, SIP, IMS, PTT / MCPTT, MSRP, JSON, Websocket, Secure Websocket, SOAP, REST, XML, XBML, VXML, RTP/RTCP, SRTP,
2. STUN, TURN, ICE.
3. UDP, TCP, SCTP.
4. TLS, DTLS.
5. Supports any text or binary based custom / proprietary protocol testing.

**Codecs: Audio** - G711 $\mu$ , G711a, AMR, OPUS,  
**Video** - H.264, VP8, VP9(WIP)

### TARGET DOMAIN

**Telecom. products:** Test IP (Internet Protocol) based Voice & Data Services, like VoIP, IMS, RC.

**BFSI products (Financial Technology):** Test Internet Banking, Financial and Insurance based server side applications, etc.

**Web / WebRTC / HTTP products:** Test applications like E-Commerce & Web Services for performance under load / stress scenarios.

**JSON products:** Test WebRTC call flows with JSON signalling under load / stress.

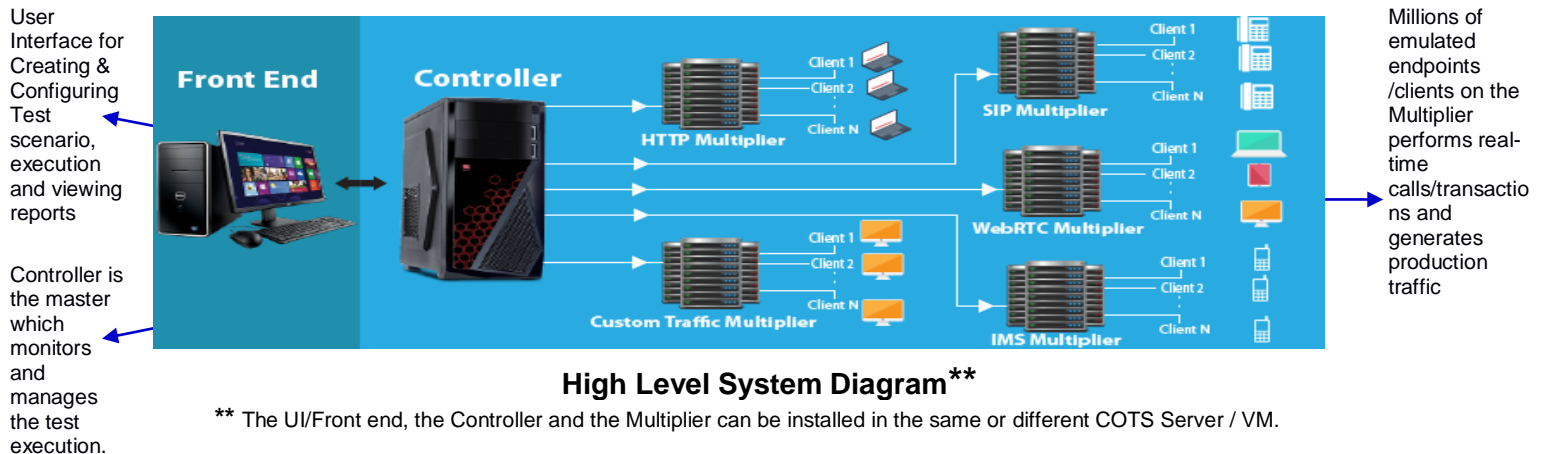
**Websocket products:** Test WebRTC call flows with Websocket based signalling under load / stress.

**XML based products:** Test any product which has XML based call flows / contents under load / stress.

**Mobile Apps Server:** Test the Mobile App Server call flows via record and replay of the user scenarios.

**Supports Customization:** Load Multiplier can act as a wrapper over any software and bring up large number of such instances to simulate a real field scenario.

## SYSTEM ARCHITECTURE:



The Load Multiplier consists of the Web Server, the Controller and Multiple Protocol Specific Multipliers. Using any browser, the user can access the Load Multiplier frontend / UI which is hosted on the Web Server. The User invokes the start of the test from front end. Upon receiving signal from the Web Server, the Test Suites are loaded onto the Controller. The Controller then forwards specific test instructions to the assigned Multipliers. The Multipliers simulates tens of thousands of virtual users/endpoints and executes the test instructions received from the Controller at the configured rate (CPS/RPS). As the test execution progresses, the Multipliers update the status / statistics to the Controller, which in turn updates the same in the Web Server. The end user can view the statistics in the front end (i.e. through the web browser). The distributed architecture of Load Multiplier supports over a million virtual endpoints, subject to the hardware capabilities of the hosted infrastructure.



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### TECHNICAL ADVANTAGE

<b>Production Traffic Generation</b>	Capable of emulating millions of end-points & generating the production traffic of thousands of calls or transactions per second.
<b>Protocols Compliant</b>	Compliant to various IETF, 3GPP and W3C standards.
<b>Cloud Ready</b>	Can be installed and used over local machine or in the Cloud infrastructure.
<b>No Proprietary / Sophisticated Hardware Requirement</b>	Can run on normal desktop machines, it does not require any complex hardware. However, if Load requirement is high, it can also run on COTS / BLADE Servers.
<b>Proprietary Client Emulation</b>	Can emulate any proprietary client software via shared libraries.
<b>Proprietary Protocol Testing</b>	Multiplier is capable of testing any proprietary (text / binary) protocols by emulating custom call-flows.

### USER ADVANTAGE

<b>Scripts Free*</b>	User does not need to write complex scripts, instead it uses text format logical syntax to create the test scenarios. * For advanced users or developers, the option to script in LUA is also available
<b>Data Input</b>	The Tool provides two options – a) The tool can auto generate data and internally use it as input data, b) Input variable data from one or more .csv files, in a format of user's choice
<b>Completely Automated</b>	No manual intervention required.
<b>Media Support</b>	The multiplier supports ( <i>transmits and receives</i> ) multiple software-based IP media streams in real-time. No custom built / COTS hardware/s are needed.
<b>Detailed Report of Executed Scenarios</b>	Summary & per Scenario Analysis based statistics with reasons of failure (if any), CPS, RPS, etc. are provided.
<b>Graphs</b>	The default graphs are available, as well as an option has been provided to the user to configure multiple graphs.

### SYSTEM REQUIREMENTS

#### Minimum Hardware Requirements

Intel i5 / i7 Quad core CPU, 64 bits, 2.X Ghz or above per core, RAM: 4GB, HDD: 20GB available, Network Interface: 100/1000 Mbps,

\* The hardware can be hosted locally or in the cloud e.g. AWS, Digital Ocean, etc.

#### Minimum Operating System Requirements

**Linux:** Ubuntu 14.04 LTS 64bit

#### Windows OS:

Need VM in the machine running Windows operating system, to create VM instances, to instance xUbuntu 14.04 64 bits\*.

\* Running on VM reduces efficiency of the Load Multiplier.

### PRODUCT

#### FEATURE ROAD MAP

- Dec.'17:** Graph - Phase2, Script evaluation engine upgrade
- Jan.'18:** Graph – Phase3
- Feb.'18:** Codec OPUS - Stereo supp. Media files with session names
- Apr.'18:** Media QOS (WIP),
- May.'18:** Codec: VP9(WIP), IPV6 sup.
- TBD:**
  - (1) Direct access to the front end through Android App. - TBD
  - (2) Support for Red Hat Linux – TBD

### LICENSING

We offer two types of Licenses:-  
1. "Monthly Subscription Plan", and  
2. "Perpetual Licenses (i.e. Lifetime Commercial License)".

We also offer "Hosted Testing Solution".

For more details, kindly contact us at [info@loadmultiplier.com](mailto:info@loadmultiplier.com)

### SELECT USE CASES

#### Telecom products (with for example Kamailio SIP server):

1. VoIP – IETF & 3GPP call flows with audio codec G711μ, G711a, AMR-NB, OPUS).

#### WebRTC (Janus, Coturn, Kurento)

1. HTTP / HTTPS / Websocket / Proprietary text/ binary protocol based call flows for media server / gateway with real A/V.
2. SIP call flows with Audio/Video.
3. Video call\* (codec video: VP8, H.264, audio: OPUS, AMR,...).

\* Supported for simulated endpoint to another simulated endpoint/s.

#### HTTP / JSON / XML products

1. LM can test products based on HTTP / HTTPS / JSON / XML / EBML / VXML.

#### BFSI products (Fin. tech)

1. In addition to HTTP / HTTPS transactions, transactions like Websocket transactions can be simulated, any proprietary activity you can simulated during HTTP/HTTPS session.