

# CHIMERA

NETWORKIMPAIRMENT EMULATOR

Distributed by



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- PRODUCT DEFINITION
- CHIMERA HARDWARE
- CHIMERA SOFTWARE
  - APPLICATIONS
  - KEY FEATURES
    - ROADMAP
    - MORE INFO



Chimera is a network impairment emulator that makes it easy to analyze the impact of latency, packet loss and other impairments between DUTs in the lab at 10GE, 25GE, 40GE, 50GE and 100GE.



## MAIN APPLICATIONS

Service providers, enterprises, and government agencies that own or run networks can use Chimera to validate that they can deliver a satisfactory Quality of Service (QoS) for all voice, video, and data traffic.

This makes Chimera relevant for anyone tasked with ensuring the performance of:

- Financial applications
- Voice and video traffic
- Cloud and network applications
- Enterprise applications
- WAN optimization
- Carrier Ethernet
- Routing and MPLS
- Satellite networks
- SLA planning and validation
- Data centers
- Network security



## MAIN APPLICATIONS

Chimera is a valuable tool for NEMs who want to optimize Quality of Experience (QoE) for customers by ensuring their equipment can handle acceptable levels of impairment. This is relevant for manufacturers of:

- Switches
- Routers
- NICs
- Fronthaul/backhaul platforms

# Chimera



## HARDWARE



Chimera is a 2-cage test module that fits into a Bay (occupying 2 slots) and a Compact chassis





Chimera's impairment functions are accessible directly from **ValkyrieManage**.

A web UI called **ChimeraManager** will be released later this year enabling impairment to be added to traffic between 2 DUTs.

**ValkyrieCLI** is available for all scripting and test automation purposes.





## Highlights

- Integration
  - UI:
    - Integration with ValkyrieManager and - in the future - VulcanManager
    - Easy setup by using Valkyrie stream definitions to configure Chimera flow filters
  - Physical:
    - Chimera test module will fit into a ValkyrieBay chassis
      - No additional footprint when used with the Valkyrie Traffic Generator
  - Data rates:
    - All rates from 100 GE to 10 GE in one test module
    - Future: All rates from 400 GE to 10 GE in one test module
- Small size as a stand-alone application – ChimeraCompact
  - Easy to transport



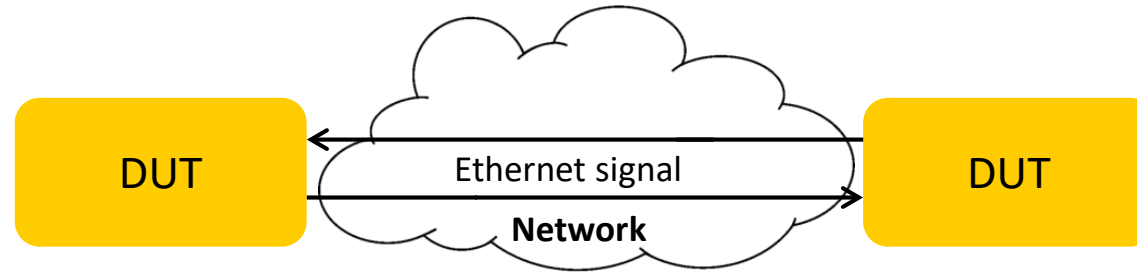
## Applications

- Benchmarking
- Stress testing/Negative testing
- “What-if” testing
- Regression testing

## Industry Segments

- NEMs
- Financial
- Enterprise
- Telcos

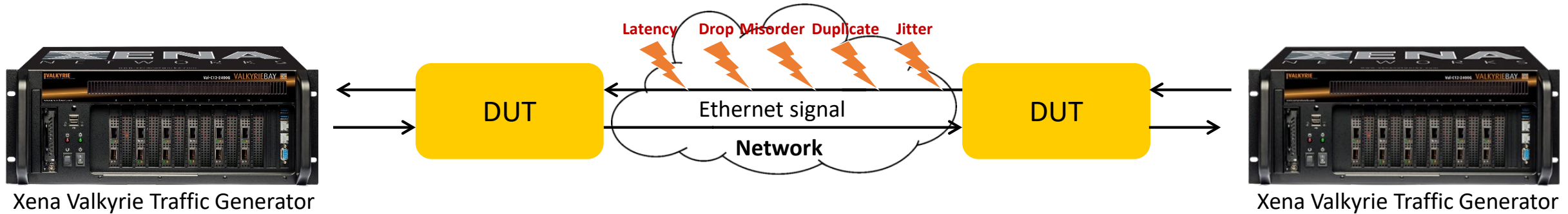




Manufacturers of network equipment needs to test new or updated products. Testing may include transmitting signals through a network:

- Worst-case condition behavior
- Performance testing through an Ethernet network under realistic network conditions

## INTRODUCTION TO IMPAIRMENT



You typically use a traffic generator to generate well-defined traffic

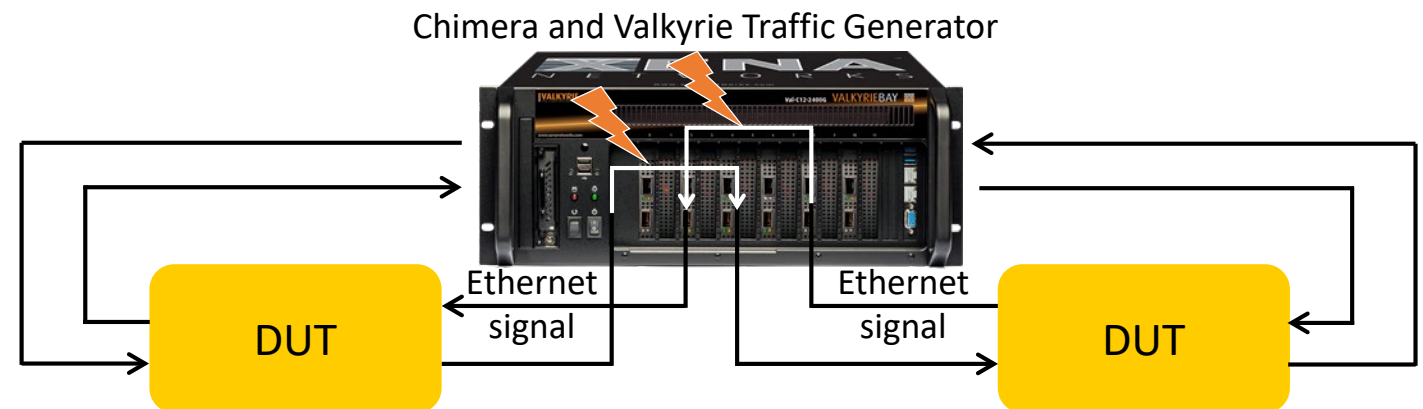
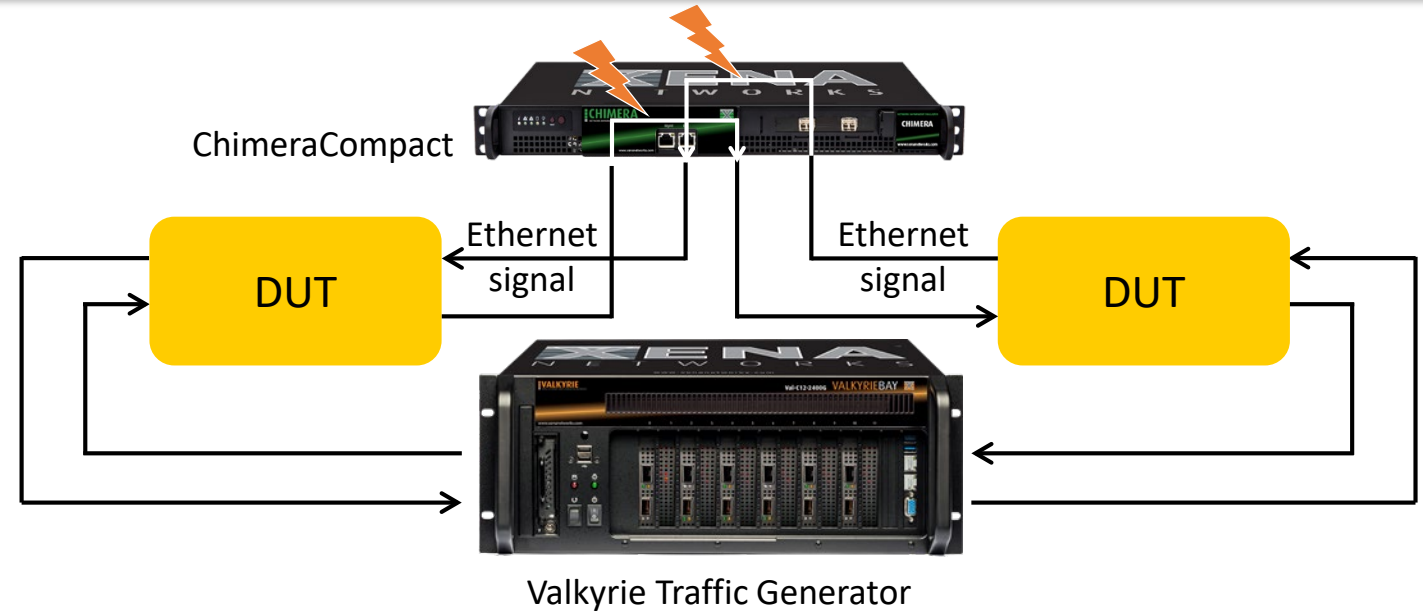
Network behavior can be unpredictable:

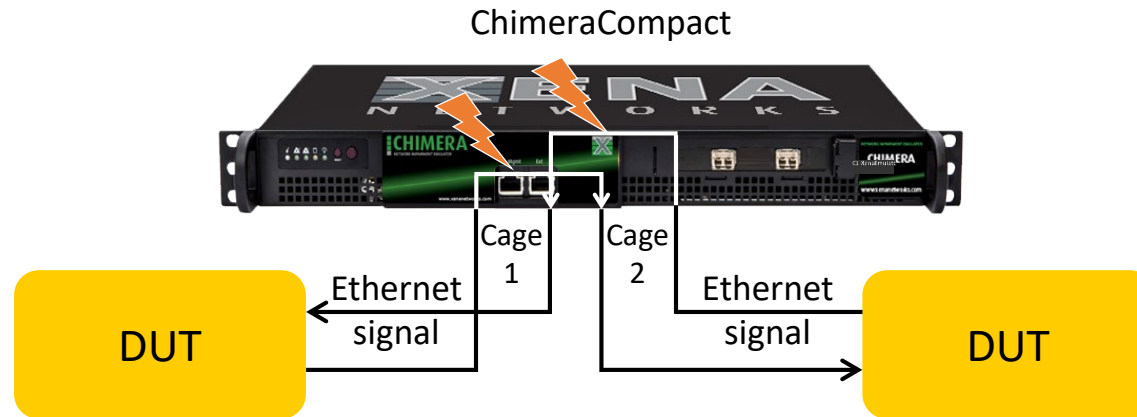
- You will experience latency and maybe also other signal impairments

## INTRODUCTION TO IMPAIRMENT

With a network impairment emulator like Chimera you can introduce consistent, accurate, well-defined and repeatable impairments to the traffic between the DUTs – in the lab

- Chimera and Valkyrie Traffic Generator can be installed in the same chassis

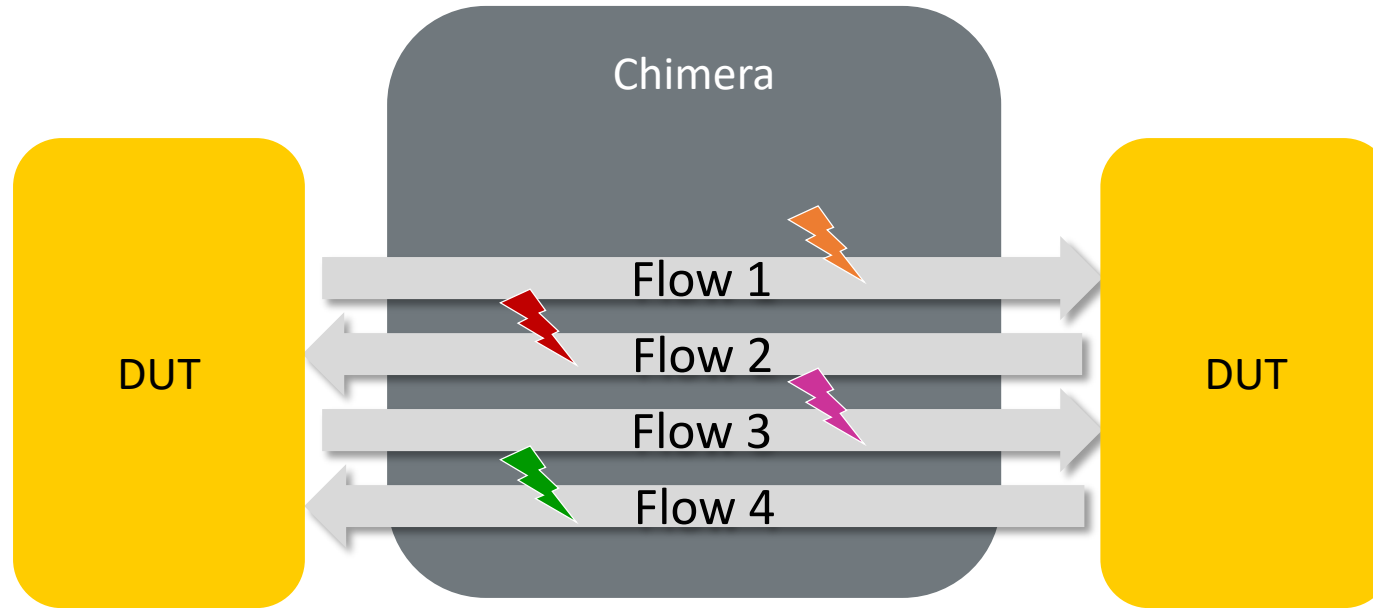




Testing may be also done just using a traffic impairment emulator (i.e. without the traffic generator)



## FLAWS

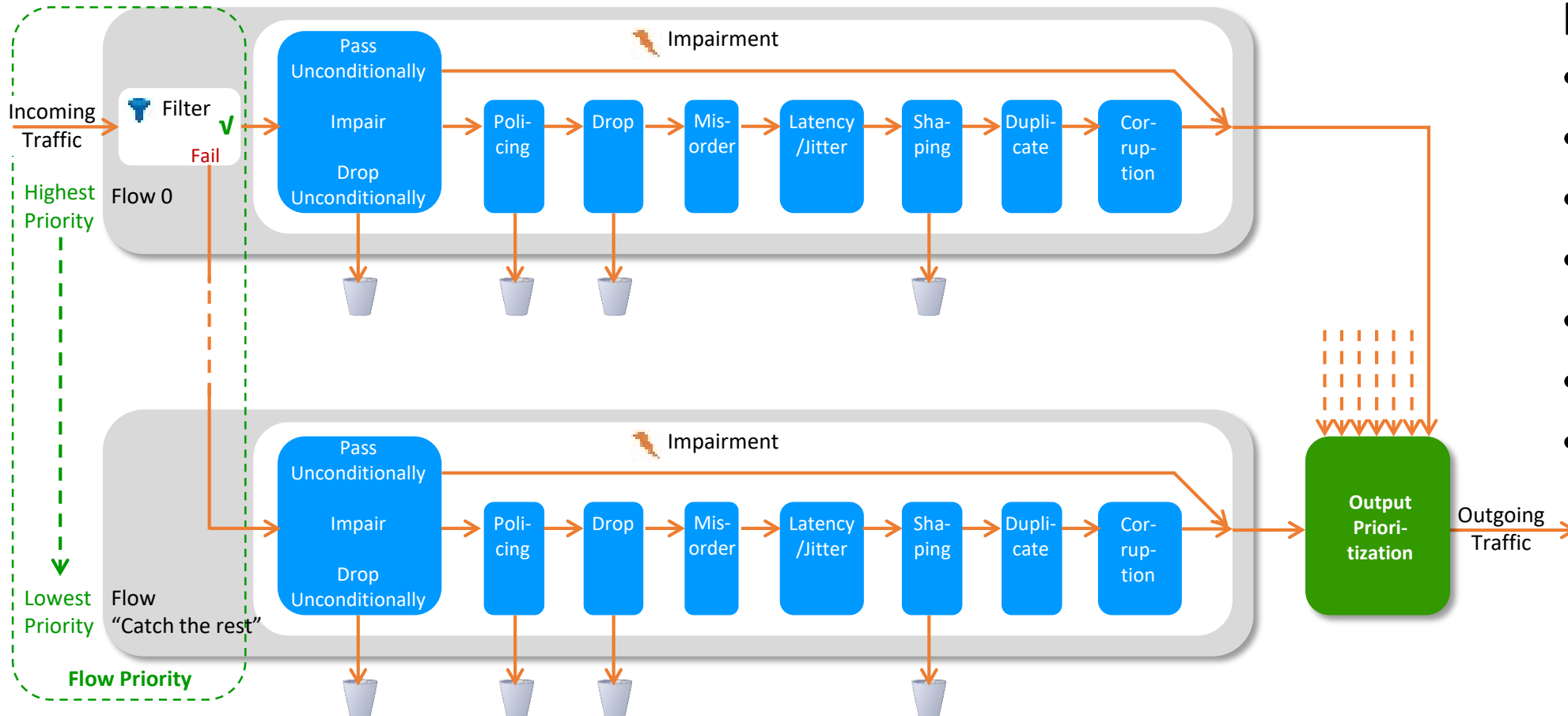


- Traffic is divided in up to 8 flows that are impaired individually
- Flows are defined by protocol contents in packet header
  - May also be defined by Xena Valkyrie test packet ID

# Chimera – Introduction



## FLOWS



### Impairments:

- Drop
- Latency/Jitter
- Misorder
- Duplicate
- Policing
- Shaping
- Corruption

# Chimera – Introduction



## Roadmap

### Chimera Release 1 (May 1, 2019):

- Random Packet Drop
- Constant Latency/Jitter
- Save/recall of Emulator projects



### Chimera Release 2:

- Mis-ordering of packets
- Corruption of Ethernet Frame FCS
- Filtering of flows
- Multi-flows



### Chimera Release 3:

#### Packet drop

- Random
- Burst
- Periodic
- BER
- Gilbert-Elliott

#### Corruption

- IP header Check Sum
- UDP Check Sum
- TCP Check Sum
- BER

#### Latency / Jitter

- Uniform
- Exponential
- Accumulate & Burst
- Jitter (Gaussian)

#### Library

- of own impairments

#### Flows

- Filters
- MultiFlow (MF)



### Chimera Release 4:

#### Bandwidth

- Bandwidth Control
- Bandwidth Shaping

#### Latency / Jitter

- Jitter (Gaussian)

#### Library

- MEF-18
- ITU-T G.8261
- G.1050/TIA-921

#### Flows

- Flow Discovery
- Capture
- MF Output control



Also coming ...

- Chimera-400GE with support of:
  - PAM4 based speeds:
    - 400GE
    - 200GE
    - 100GE
    - 50GE
  - NRZ based speeds:
    - 100GE
    - 50GE
    - 40GE
    - 25GE
    - 10GE