

CMX

Take more Control over your C/C++ Services

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Background

- Accelerator Controls System: C, C++ & Java services
- Constant monitoring is essential: **(pre-) failure detection**
- Introspection of running process is very useful
 - Java = Java Management Extension (JMX)



Can I have the same for C/C++ services

Unsuitable existing solutions ...

- SNMP
- syslog
- Embedded HTTP
- Embedded JMX (JVM + JNI)



Too complicated, dependency hell, heavy, not scalable

CMX

Goal:
**Simplify Monitoring, Debugging
and Diagnostic of C / C++ Processes**

- C & C++ Library
- Simple API to expose numeric and character information
- Low memory footprint
- No external dependencies
- Non-blocking operations
- No additional background tasks

Instrument

1

CMX API

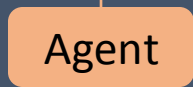
```

cmx_process_register();
double value = 10f;
...
cmx_metric_set(comp, "clients", value);

```

clients requests build time version ...

C / C++ Process



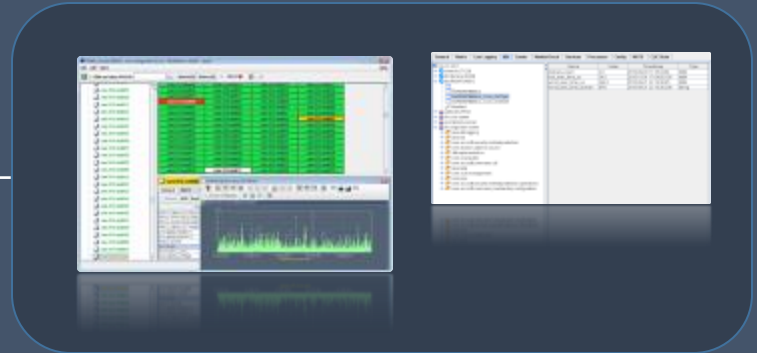
Explore

2

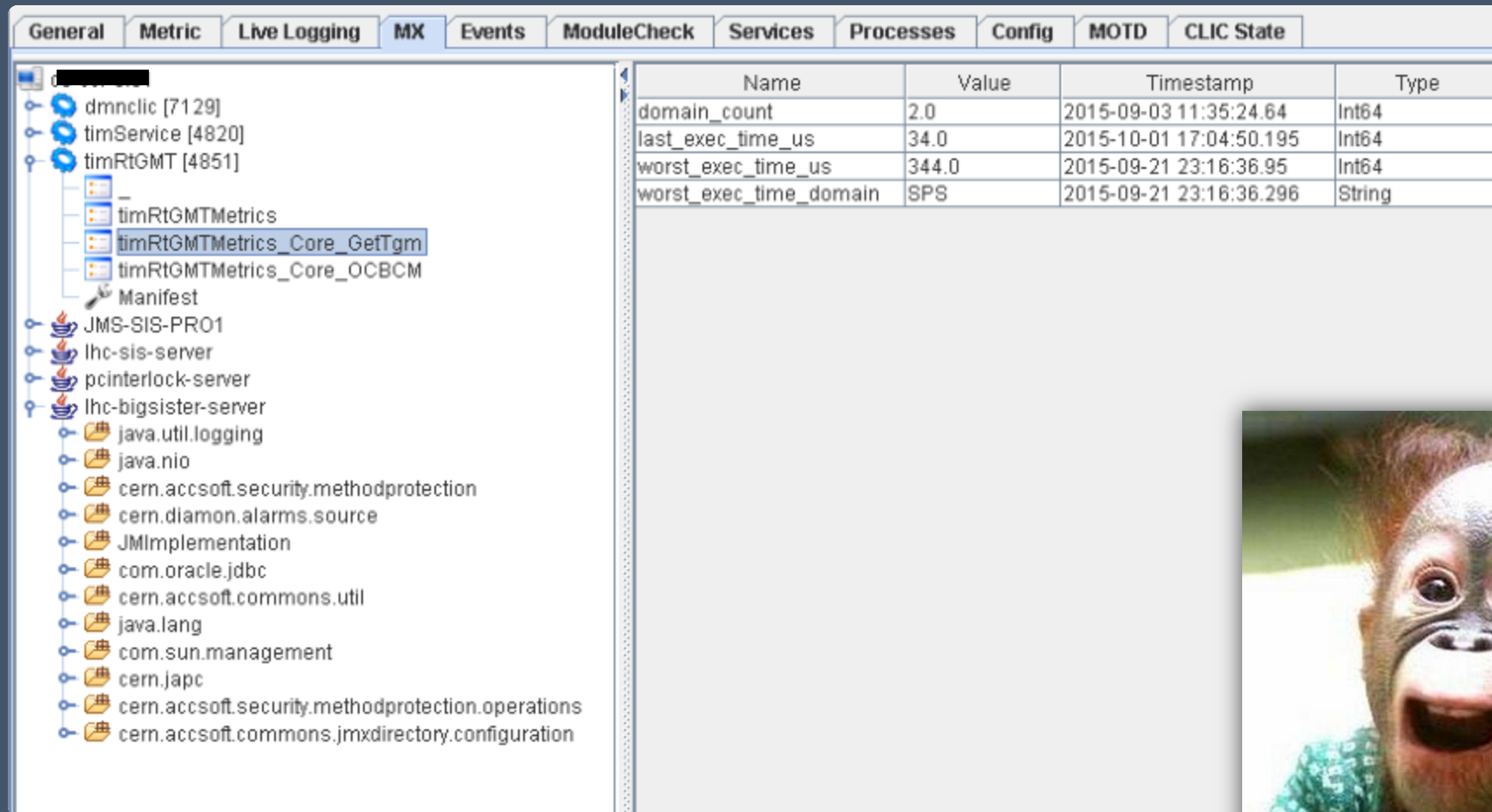


3

Integrate



Example: The MX Viewer – Read metrics remotely



The screenshot shows the MX Viewer application with the following components:

- Navigation Tabs:** General, Metric, Live Logging, **MX**, Events, ModuleCheck, Services, Processes, Config, MOTD, CLIC State.
- Tree View (Left):**
 - dmncllic [7129]
 - timService [4820]
 - timRtGMT [4851]
 - timRtGMTMetrics
 - timRtGMTMetrics_Core_GefTgm**
 - timRtGMTMetrics_Core_OCBCM
 - Manifest
 - JMS-SIS-PRO1
 - lhc-sis-server
 - pcinterlock-server
 - lhc-bigsister-server
 - java.util.logging
 - java.nio
 - cern.accsoft.security.methodprotection
 - cern.diamon.alarms.source
 - JMImplementation
 - com.oracle.jdbc
 - cern.accsoft.commons.util
 - java.lang
 - com.sun.management
 - cern.japc
 - cern.accsoft.security.methodprotection.operations
 - cern.accsoft.commons.jmxdirectory.configuration

- Table (Right):**

Name	Value	Timestamp	Type
domain_count	2.0	2015-09-03 11:35:24.64	Int64
last_exec_time_us	34.0	2015-10-01 17:04:50.195	Int64
worst_exec_time_us	344.0	2015-09-21 23:16:36.95	Int64
worst_exec_time_domain	SPS	2015-09-21 23:16:36.296	String


Don't give up on monitoring C/C++ programs.
CMX helps us – it may do for you!

Available as **open source project** on <http://cern.ch/cmz>