



CELUG

Centralized Enterprise Licensing Users Group

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Mission Statement:

To facilitate collaboration among companies who administer software licensing at the enterprise level, enable sharing of best practices and experiences, and partner with software publishers to improve software license management tools and processes.

CELUG has been in existence since January 2003

Web Site: www.celug.com

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Membership:

CELUG membership is limited to those whose responsibility is management of software assets within their companies.

In general, persons working directly for software suppliers may not become members.

The CELUG steering committee may grant membership to anyone if it is determined that such access is not in conflict with CELUG policies and goals.

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Licensing Challenges:

Replacement for lmstat

- Real time access to vendor daemons for license count and usage information. This will allow the ability to tie job slot and license together (only dispatch when both are available). Also allows the ability to effectively utilize the license resources.

Minimum release standard

- Flag to detail what FLEXnet options are enabled

Enable ultimate denials

- Step through license denials until the true denial is reached, then report that denial

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Licensing Challenges:

Linger license problem

- Request for force remove option with the `lmremove` command

lmreread inconsistencies

- Need to run `lmdown` and then `lmgrd` to enable license file updates

Provide best practice documentation

- License server hardware scalability recommendations
- LAN/WAN
- Triad
- File descriptors

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Licensing Challenges:

BOM (Build Of Materials)

- License file updates
- Features and sub-features

Product to feature mapping

- Sales part number / Product name
- License file feature/increment
- Engineer run command

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Licensing Futures:

- Dynamic rehosting
- Utility pricing
- Pricing per socket, not per core
- Ability to suspend, preempt and resume resource
- Checkpointing running tool and relocate to different resource

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EDA infrastructure challenges from an industry perspective:

Global Computing

Follow-The-Sun Computing

Large Network Pipes (Bandwidth)

Un-tethered Access Into Job Status & Results

Grid Storage (HPFS)

- Distributed Filesystem
- Clustered
- Storage Switches

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EDA infrastructure challenges from an industry perspective:

Dense computing

- High-density blade racks
- Power and cooling issues

EDA Grids

- Break up individual jobs and run in parallel across a grid of computers

Data Grids

- Move large amounts of data around the globe (pre-staging, caching)

License Grids

- Dynamically move licenses around the globe based on need

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EDA infrastructure challenges from an industry perspective:

Engineering IT partnering with ISV's

- Licensing roadmaps
- O/S roadmaps
- Tool dependencies
- DRM integration

Processor manufactures are moving to multi core per socket

- Tools are predominately single threaded

Open Standards

- LSB adoption
- Job Submission Description Language (JSDL)

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Conclusion

- **Continuous improvement in license management tools**
- **Alignment of EDA licensing with grid challenges**
- **Adoption of open standards**
- **Partnering for a unified voice**



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Licensing Update

Sashi Subramanian
Cadence Design Systems Inc.
10/17/2006

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Mission Statement

- *Deliver secure and flexible licensing functionality to customers that increases customer satisfaction while protecting Cadence's IP.*

Cadence Roadmap for 2007-2008

- **Security**
 - Evaluate FLEXnet 11.X and other technologies that can protect Cadence applications and Cadence license server
- **Compliance**
 - More robust license validation
 - Cadence products are now more stringent when handling a 'lost' license.
 - Better Asset Management
 - License Compliance methodology and tools that will enable customers to do a compliance review.

Cadence Roadmap (contd.)

- **Usability & Flexibility**
 - Evaluate and plan FLEXnet 11.X rollout
 - Evaluate connecting Cadence license server to their Grid Management software

Current Status

- **Cadence now ships keyword/value pair format license files**
 - Default format as of November 1st, 2005.
- **These licenses require the v10.X license server (or later)**
 - Cadence License server is now based on FLEXnet 10.8.0.7
 - Available as part of the latest license release from Cadence download server
- **All of Cadence's current product releases (starting in 2H06) are based on FLEXnet 10.8 and will only work with the new format license files**
 - Contain TRL encryption and require at least a v10.8 license server

Current Status (contd.)

- **FLEXnet v10.8.0.7. appears to be a “stable” release from Macrovision and addresses the following issues:**
 - The vendor daemon fails to restart properly if quorum was lost by Imgrd and then re-established.
 - The vendor daemon should restart only when the quorum has been re-established in a three-server configuration.
 - License server performance degradation due to large options file.
 - Debug log file doesn't show quorum status information.
- **Cadence strongly recommends deploying v10.8.0.7 if you have not already done so.**

Questions

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MGC Licensing Roadmap Update

For SoftSummit session, *CELUG Licensing Challenges and Industry Experiences from an Enterprise Customer Perspective*

John Harms, Engineering Manager
MGC Licensing/Installation Software

October 17, 2006

The logo for Mentor Graphics, featuring the word "Mentor" in a large, bold, white sans-serif font above the word "Graphics" in a similar font. A registered trademark symbol (®) is located to the right of "Graphics". The background of the slide is a blue digital-themed graphic with binary code, circuit lines, and a globe.

Licensing Roadmap

2005

2006

2007

- High-capacity license server available to all customers

- New platform support

- Built on FLEXIm v9.5

- Participate in FLEXnet v11 beta

- Licensing library based on FLEXIm v10.8 released to Mentor product groups

- License server based on FLEXIm v10.8 available to Mentor customers

- Mentor begins sending long-format licenses (new purchases and annual renewals)

- Mentor product groups begin rolling out new versions of applications that require long-format licenses

Migration to New Vendor Daemons

- **2004:** *mgcld* vendor daemon based on FLEXlm v8.2
 - Customer-requested (e.g. OPTIONS file improvements)
 - Improved diagnostics
 - Support license servers on Solaris 9
- **2005:** *mgcld* based on FLEXlm v9.5
 - “File Descriptor” limit significantly improved
- **2006/2007:** *mgcld* based on FLEXlm v10.8
 - Blocked queue fix
 - Fixes to vendor daemon memory consumption
 - Dongle drivers updated
 - Long-format licenses supported (modern encryption)

Long-format Licenses

Current License File:

```
SERVER unnamed_12345678 12345678 1700
DAEMON mgcld path_to_mgcld
INCREMENT designarch mgcld 2005.060 11-jun-2005 1 3D325A413F56CECEAD9B \
  VENDOR_STRING=3954FE92 SN=4398492
```

SIGN2 field added to each licensed feature:

```
SIGN2="1234 5678 90AB CDEF 1234 5678 90AB CDEF 1234 5678 90AB CDEF 1234
5678 90AB CDEF 1234 5678 90AB CDEF 1234 5678 90AB CDEF 1234 5678 90AB"
```

Example:

```
INCREMENT falconfw_s mgcld 2006.070 14-jul-2006 1 4D348ACFA8CDAB5D03CD \
  VENDOR_STRING=3A654685 SN=4403768 SIGN2="153F 93F6 C093 6447 E234 B130 \
  E40D C1FB A86E FD44 5943 CA7E 897C 751A FF21 0AA9 66C4 AC76 9451 68F1 \
  81F3 68AA 34CA 16E0 BF88 D8E5 F849 BD0F A311 B55B"
```

FLEXnet v10 vs. FLEXnet v11

- **FLEXnet v10 was a continuation (re-branding) of Macrovision “FLEXlm” technology**
 - **FLEXlm became FLEXnet Publisher**
 - **FLEXnet Manager new, but SAMreport v3.6 still worked**
- **FLEX v11 licensing represents a paradigm shift that Mentor is not yet planning to adopt**
 - **Trusted Storage / Activation paradigm would require major changes to order fulfillment systems**
 - **Possible to adopt v11 without using Trusted Storage, but...**
 - **No compelling benefits yet identified in FLEXnet v11**
 - **Especially if v11’s Trusted Storage / Activation not used**
 - **Continuing to monitor the cost/benefit of migration**
 - **Listening to our customers regarding impact to them**

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