



Under-Licensing and Software Piracy

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EDAC Mission & Anti-Piracy Efforts

- **The Mission of EDAC is to do the things that no single company can do alone...**
 - like collect marketing statistics for the industry, lobby about export controls, Anti-Piracy, etc.
- **The specific mission of the Anti-Piracy and Licensing Committee is to**
 - “Focus on Licensing as a means to manage and protect the entire EDA industry’s IP”

Why “protecting” our IP is hard...

- For the most part, overt theft (i.e. Piracy) is technical in nature
 - Counterfeit Keys
 - HostID spoofing
 - Modified Binaries
- But with higher cost / complexity products, “lost value” is more likely to be some form of “*under-licensing*”

Some causes of “under-licensing”

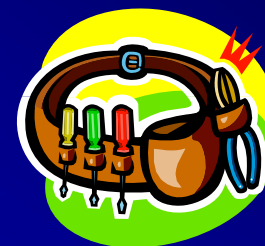
- Insufficient technology to implement licensing models being used (and/or desired) - e.g. SEAT Model, WAN access, etc. Macrovision Issue
- This leads to complex contracts & licensing structure of EDA tools. Vendor Issue
- Because of the complexity, it's difficult to properly implement licensing algorithms
Vendor Issue
- This leads to a high degree of ambiguity over what was actually used (or can legally be used). Vendor & Customer Issue
- Which leads to complex contracts, “demo” keys, etc. (and the cycle just keeps looping)



A “License” is NOT the same as a “Key”

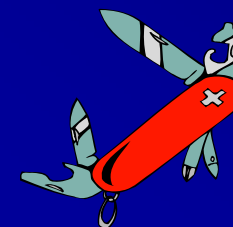
- License

- The rights granted to a customer to use the technology that was purchased using a specific part number
- e.g. One purchase of this part number grants the rights to run one copy of the simulator AND one separate copy of the GUI for a specified term



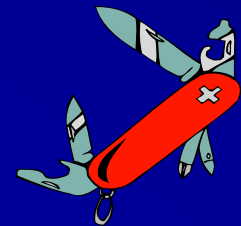
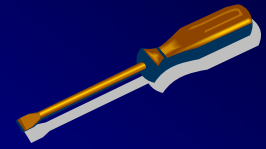
- Key / Feature String

- The FLEXlm capability used to manage / enforce compliance to the license that was sold to the user - e.g. Simulation_Key Qty=1; GUI_Key Qty=1

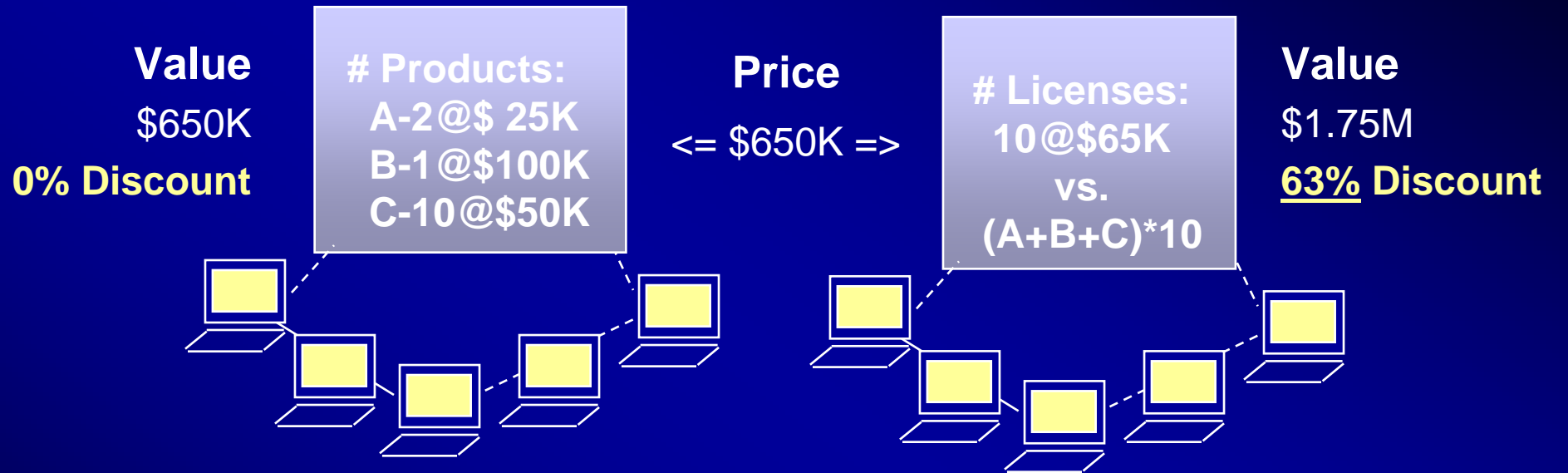


The Product Packaging Model directly affects how you manage the IP!

- What is the value of a technology (in this case the capability to drive a screw) and how do you “manage the IP) when sold as a
 - Stand-alone screwdriver
 - Part of a tool belt “kit”
 - One “blade” on a multi-function device (Swiss Army Knife)
- Each has benefits and limitations



Packaging: a la Carte vs. Solution



“A La Carte” Model

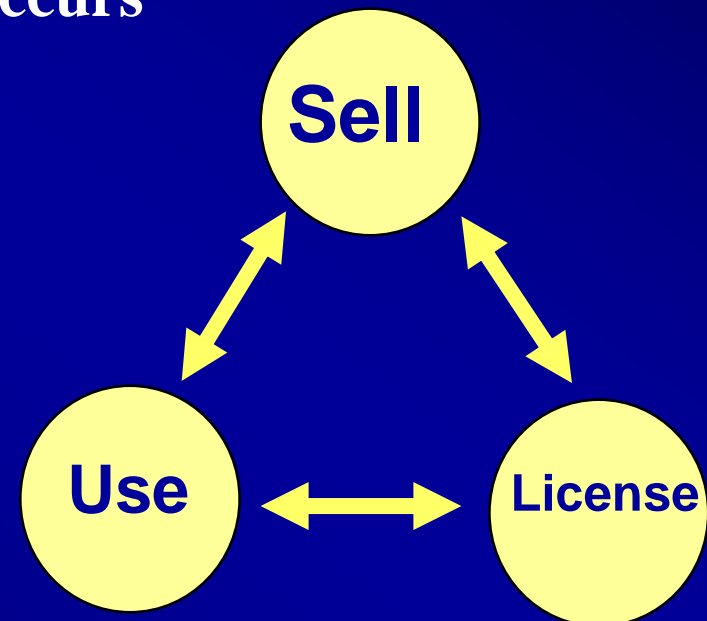
- A La Carte Tools Purchased
- Quantity Depends on Utilization
- \$\$ relatively fixed based on individual tools

“Solution” Model

- Purchase a technology “Solution”
 - Quantity Depends on # of Users
 - \$\$ Depends on Use Model / Ratio
- No Use Model control = BIG Discount**

The Packaging Model

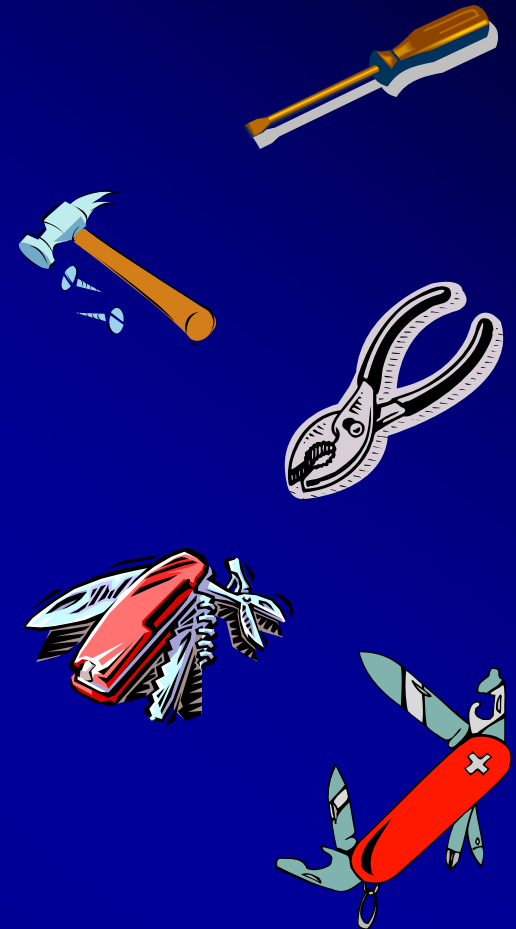
- **Expectations on tool use is established by how you package and sell it**
 - If it is not consistent with your packaging, confusion or unintended (or additional) use occurs
 - **Higher Use = Higher Value**
 - » Floating license premium
 - » Premium for short term licenses.
- **Once the Selling Model and Use Model are in alignment, Licensing is “easy”**



Packaging Issues...

...From a Customer's Point of View

- **Perception (or Desire) that they are still purchasing individual tools**
 - Lack of Flexibility – doesn't fit my methodology
 - If no unified look/feel, customer can be confused. Is this a screwdriver or is it a pocket knife?
- **Issues in Use Model, upgrade paths, etc.**
 - Hard to manage bug fixes, get an upgrade, keep different versions synchronized, etc.
- **Confusion about which tool to select**
 - Is there a model that has the right combination? What if I pick the wrong model?



There are Three Basic Forms of “Piracy”

While packaging is important we can't ignore Piracy

1. Counterfeit keys (make your own keys)

- Majority of piracy takes this form today (because it's easiest)
- FLEXIm added “increased” encryption via Tamper resistant licensing (TRL)

2. HostID spoofing (clone the server)

- Very easy to “spoof” (clone) PC hardware IDs

3. Binary Hacking

Binary Hacking

- **If you have enough time, you can reverse engineer (and modify) the binaries with “dis-assemblers” and other “debug” tools**
 - This technique was used to create the original FLEXlm “hacks”
- **It’s a very popular method to crack PC based tools and other forms of “DRM”**
 - The newest versions of both Apple's and Microsoft's DRM technologies were both cracked within 24 hours of their release!
- **As the other “easier” methods to steal EDA software get closed, providing binary “protection” will become even more important**

EDAC Anti-Piracy Roadmap - 2007

- **Promote and Share “Best Practices”**
 - **Packaging and Product simplification**
 - » Develop and deliver a 1 Day Educational program on how packaging & licensing issues interact to affect value.
 - **Encourage use of TRL and other counterfeit prevention measures**
 - **Develop viable “audit” procedures (including self audits)**
 - **EDA specific material on license management, configuration and infrastructure**

EDAC Anti-Piracy Roadmap - 2007

- **Drive increased security and functionality in license management technologies (i.e. FLEXlm and others)**
 - **Continue Macrovision “engagement”**: Secure firm commitments on deliverables and schedule
 - **Work on HostID Spoofing** to see if we can define a viable approach
 - **Continue to track Anti-tampering vendors**
 - **Implement WAN validation**

Wrap Up / Questions

- **We “meet” in a monthly phone conference to discuss and work on various issues**
 - **We are always looking for more “volunteers” to help out**
- **To get involved, send me an email:**
email: baeder@cadence.com