Saving Money in the Enterprise
With OpenCms

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June 16, 2009
Quick Overview

Content

• CME Background
• Why OpenCms
• What we are doing
• Where are we going

Format

• Questions are good
• My German ist nicht so gut
What is the Enterprise?

- Large company
  - Defined by employees
  - Defined by $$$
  - Defined by complexity

- Pay for 'Enterprise Licenses'
  - 'Enterprise Support'
  - 'Quality'
  - ...Someone to blame
What is CME?

• Background on CME
  • World's largest and most diverse derivatives exchange
  • Over 10 million contracts traded daily with notional value of hundreds of billions of dollars
  • cmegroup.com is the medium for marketing messages and data distribution
  • In 2006, purchased Chicago Board of Trade, 2008 purchased NYMEX with practically all operating cash (no debt)
Timewarp

- 2001 – Purchase of a licensed CMS Solution
  - Percussion Rhythmyx v4.0
    - List price of ~$500K (US) for one production license, one disaster recovery license, one QA license, and the 'developer studio'
      - License for version 4.x, future versions would cost additional
    - ~$80K (US) annually for support
    - Additionally budgeted on average $40K annually for consulting services
    - Required a dedicated Sun 440 Server for each environment ~ $10K (US) per server
  - Open Source solutions not even considered
CME Launches Global Incentive Programs
CME announced it will offer two additional pricing incentive programs to further develop its customer bases in North America and Asia. Full Story.

CME Hosts FX Roundtable
On Feb. 4, CME hosted a lively and wide ranging roundtable discussion on economic and political developments in global foreign exchange markets featuring a distinguished panel of economists and market participants. A replay of the discussion is available via telephone through Feb. 11. Dial (800) 633-8284 if in the U.S. or (402) 977-9140 if outside the U.S. Both numbers require callers to enter reservation number 21184529 to hear the replay. The opinions expressed in this roundtable discussion are solely those of the participants and not of
Environment Then

Web/App

Web/App

Web/App

Web/App

CMS
Problems in Paradise

- User interface was an applet
- Support nightmare
- Upgrades impossible
- Slow
- Pegged the server
- Support not very supportive
- Licensing 'disagreement'
The tides begin to turn - 2004

- We didn't have time for depth search
- Tired of vendors and vaporware
- Quick research based on our development standards (Java / XML)
- Internal prototyping
- Low risk, low entry point
- Wanted an active community, stable product
Choice made, migration to OpenCms

- Code was what we knew – Java, XML, XSD
- Active Community
- Mature Product
- Had what we needed, didn't have what we didn't need, easily extensible
- Ease of standing up
- No 'weird errors' during smoke testing
## Immediate cost savings (expected)

<table>
<thead>
<tr>
<th></th>
<th>Percussion</th>
<th>OpenCms</th>
</tr>
</thead>
<tbody>
<tr>
<td>License</td>
<td>$250K</td>
<td>Free</td>
</tr>
<tr>
<td>Support</td>
<td>$80K</td>
<td>$10K</td>
</tr>
<tr>
<td>Services</td>
<td>At least $40K if we wanted to try and upgrade</td>
<td>Varies based on needs</td>
</tr>
<tr>
<td>Hardware</td>
<td>$40K (dedicated)</td>
<td>$5K (shared)</td>
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Not just free licenses

• **Support**
  – Average time to resolve a production impacting problem – 2 weeks (large sample set)
  – Average time with Open Source – 1 day
  – Higher quality, less defects
  – All adds up to $$$ savings

• **Bug Fixes / Release Schedule**
  – Twice yearly releases, problematic bug fixes or 'pay for'
  – Nightly updates, fix it yourself
  – Its like CI for your software stack
More....

- **Deployable / Installation base**
  - Footprints

- **Transparency**
  - Not sure what the code is doing? Debug it

- **Community**
And still more...

- Frees up developers
- Allows us to do things we couldn't do before
- Innovation - New ideas come to open source first
So Why OpenCms?

- It's not just about licensing dollars
CME Market Data

Real Time Data Servers
(Scaled to meet real time needs, presumably at least 4 using Apache proxying for requests and load balancing.)

Delayed Data
(Scaled to meet real time needs, presumably at least using Apache proxying for requests and load balancing. Could sit with real time and just be a function at which case number of servers would be less than the total of 8 cumulative)

Historical Data
(Backend process updating tables, not services layer)

Market Data Cache
(Cluster of servers relative to subjects. Currently this would be at least 14 servers, 7 for data with redundancy.)

Portal Servers

Web Servers

Internet

CMS

EMC Celerra

CME internal application, accessible as portlet

Connectable through portal application

LDAP

App Admin Servers / Backend Processing

Historical Data services servers

CME Group

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Thanks!

• Joel Tosi – Lead Application Architect CME Group
  – Clojure, Scala, Ruby
  – Open Source, REST Services, NetKernel, TerraCotta
  – Agile Development
  – Joel.Tosi@cmegroup.com
Questions?