

HTML5 TV

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<http://blog.rot13.org>



Zašto?

- Mnoge konferencije objavljuju video snimke
- **Video predavanja obično nije dovoljno dobar da bi mogli pročitati tekst prezentacije**
- Flash ima tenenciju da troši CPU i baterije nemilice, a imamo `<video>` tag!
- Lokalna arhiva video materijala je puno otpornija na vremenske neprilike u oblaku



Flash? YouTube / SlideShare?

The screenshot shows a YouTube channel page for 'dpavlin'. The main video player displays a message: "The Adobe Flash plugin has crashed. No report available. Reload the page to try again." The channel name is "My free software experiments" and the video title is "Marcell on t-shirts at NSND Ohrid". The video has 57 views and was uploaded 1 week ago. The channel has 19 uploads and 46 favorites. The video player includes controls for like, dislike, and share.

The screenshot shows a SlideShare presentation page for "Virtualization which isn't: LXC (Linux Containers)" by Dobrica Pavlinušić. The main content area displays a message: "The Adobe Flash plugin has crashed. No report available. Reload the page to try again." The presentation has 105 views, 1 favorite, and 0 embeds. The page includes navigation links like "HOME", "GO PRO", "CHANNELS", "ZIPCAST", and "UPLOAD". The presentation title is "Virtualization which isn't: LXC (Linux Containers)" and it was uploaded 2 weeks ago. The page also features a "Related" section with other presentations and an "About this presentation" section.



HTML



<video> tag

```
<video width="320" height="240" controls>  
  <source src="pr6.mp4" type='video/mp4'>  
  <source src="pr6.webm" type='video/webm'>  
  <source src="pr6.ogv" type='video/ogg'>  
</video>
```

<http://diveintohtml5.org/video.html>

<http://www.html5rocks.com/tutorials/video/basics/>

<http://www.html5video.org/kaltura-html5/>



Izazov: koji <video> codec?

	Theora+Vorbis+Ogg	H.264+AAC+MP4	WebM
IE		9.0+	9.0+ [codec]
Firefox	3.5+		4.0+
Safari	[codec]	3.0+	[codec]
Chrome	5.0+	5.0-13.0 [?]	6.0+
Opera	10.5+		10.6+
iPhone		3.0+	
Android		2.0+	2.3+ [no hw accel]

- Enkodirati u više formata na serveru
 - <http://videojs.com/>
- HTML5 API (Flash or Silverlight, single H.264 file)
 - <http://mediaelementjs.com/>



Kako obraditi i objaviti predavanja?

- Izvorni materijali
 - video datoteka
 - pdf prezentacije
- Sinhronizirati video i prezentaciju
 - U jednom gledanju, bez mnogo editiranja
- Obaviti na web-u
 - Statične HTML stranice (crawler friendly)
 - `<video>` tag, JavaScript za UI



Don't make me click!
Keyboard is the way to go!



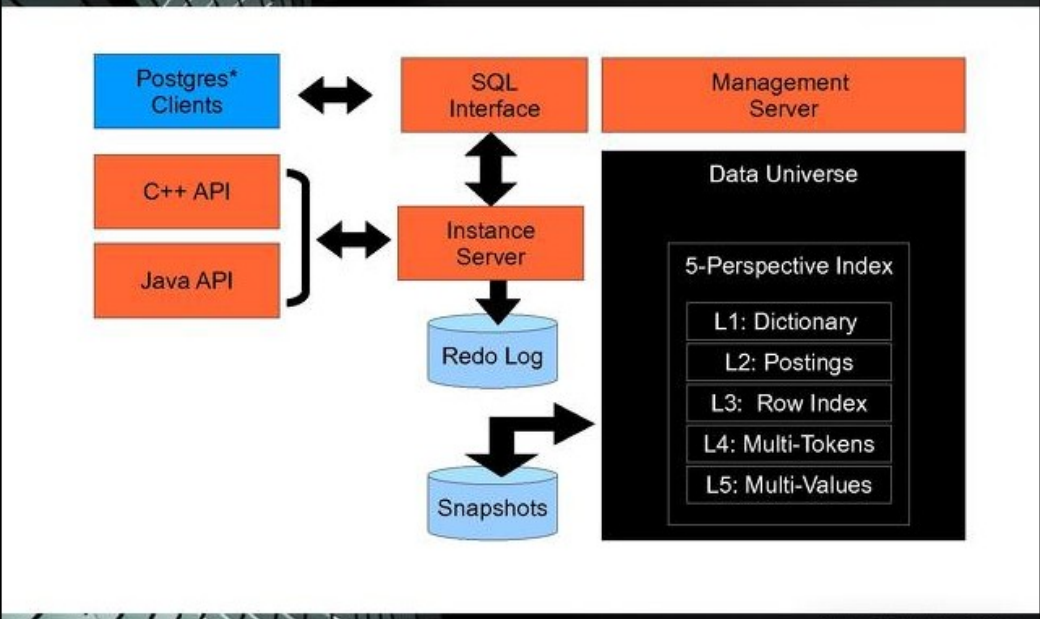

```

open: No such file o
IGNORE [MGA] Couldn't open:
IGNORE [VO_TDFXFB] Can't op
IGNORE s3fb: can't open /de
IGNORE Xlib: extension "NV
IGNORE [vdpau] Error when c
IGNORE [VO_XV] It seems the
IGNORE [VO_XV] Run 'xvinfo'
IGNORE [VO_XV] DOCS/HTML/en
IGNORE [VO_XV] See 'mplayer
IGNORE [VO_XV] Try -vo x11.
IGNORE Opening video filter
IGNORE =====
IGNORE Opening video decode
IGNORE [theora @ 0x89b12e0]
IGNORE Could not open codec
IGNORE VDecoder init failed
IGNORE Opening video decode
IGNORE Movie-Aspect is unde
IGNORE [swscaler @ 0x8a9038
IGNORE [swscaler @ 0x8a9038
IGNORE VO: [x11] 320x234 =>
IGNORE Selected video codec
IGNORE =====
IGNORE Opening audio decode
IGNORE AUDIO: 22050 Hz, 2 c
IGNORE Selected audio codec
IGNORE =====
IGNORE AO: [alsa] 48000Hz 2
IGNORE Starting playback...
prop metadata = (null)
prop video_codec = theora
prop video_bitrate = 0
prop width = 320
prop height = 234
prop fps = 29.916666
prop length = 3559.688098
slide change 1
slide change 4
slide change 6
slide change 7
slide change 8
slide change 9
slide change 13
slide change 14
IGNORE
IGNORE ===== PAUSE =====
833.9

```

[10] Current Release [11] Technology Overview [12] Why call it Data Engine [13] Why call it Data Engine

[14] BlackRay Architecture



i EDL start/stop
, add (preroll 3s)

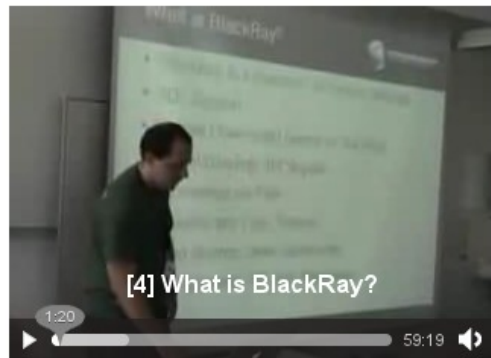
[15] Hierarchical Model [16] Getting Data Into BlackRay

- Each BlackRay node can hold many Instances
- One Management process per node
- Each Instance runs in a separate Process
- Instances are completely separated from each other
- Snapshots (for persistence) are taken on an Instance level
- In an Instance, Schemas and Tables can be created
- Queries can span across Tables and Schemas
- Once an Instance is created, data can be loaded
- Schemas, Tables, and Indexes are created using an XML description language
- Standard loader utility to load CSV data
- Bulk loading is done with logging disabled
- Indexing is done with maximum degree of parallelism depending on CPUs
- After all data is indexed, a snapshot can be taken

[17] Basic Load Performance [18] Data Universe [19] Snapshots and Data Versioning [20] Transactions in BlackRay

- German yellowpage and whatsapp data
 - 40 Million subscribers
 - 100 Million phone numbers
 - Row data approx 16GB
- Increasing performance
 - Total index size 11GB
 - Time to index: 40 Minutes, on dual 25GHz Xeon (2x4x)
 - Updates: 300MB, 200K rows in approx 5 minutes
 - Time to load snapshot: 3.5 Minutes for 11GB
- BlackRay features a 5-Perspective Index
 - Layer 1: Dictionary
 - Layer 2: Postings
 - Layer 3: Row Index
 - Layer 4: Multi-Token Layer
 - Layer 5: Multi-Value Layer
 - Layer 1 and 2 comprise a fully inverted index
 - Statistics in this Index used for Query Plan Building
- Persistence is done via file based snapshots
 - Snapshots consist of all schemas in one instance
 - Snapshots have a version number
 - To make a backup of the data, simply copy the snapshot file to a backup media
 - It is possible to load an older snapshot. Data is version controlled if older snapshots are stored
- BlackRay supports transactions via a Redo Log
 - All commands that modify data are logged if requested
 - In case of a crash, the latest snapshot will be loaded
 - Replay of the transaction log will then bring the database back to a consistent state
 - Redo Log is eliminated when a snapshot is persisted
 - For better performance snapshots should be taken periodically, ideally after each bulk update

F1 prev
F2 move -0.3
F3 move +0.3
F4 next
F5 save
F9 add
F12 edit



What is BlackRay?

- BlackRay is a relational, in-memory database
- SQL Support
- Fulltext (Tokenized) Search in Text fields
- Object-Oriented API Support
- Persistence via Files
- Scalable and Fault Tolerant
- Open Source, Open Community
- Dual licensed: GPL and Proprietary

www.blackray.org

New kid on the block: The BlackRay Data Engine

Presentation

<p>What is BlackRay?</p> <ul style="list-style-type: none"> • BlackRay is a relational, in-memory database • SQL Support • Fulltext (Tokenized) Search in Text fields • Object-Oriented API Support • Persistence via Files • Scalable and Fault Tolerant • Open Source, Open Community • Dual licensed: GPL and Proprietary <p>[4] What is BlackRay?</p>	<p>BlackRay History</p> <ul style="list-style-type: none"> • Concept of BlackRay was developed in 1999 for a Web Phone Directory at Deutsche Telekom • Development of current BlackRay started in 2005, as a Data Access Library • Production Use at Deutsche Telekom in 2006 • Evolution from Library to Data Engine in 2007 and 2008 • Open Source under GPLv2/Dual License since June 2009 	<p>Why Build Another Database?</p> <ul style="list-style-type: none"> • Rather unique set of requirements: <ul style="list-style-type: none"> • Phone Directory with approx. 80 Million subscribers • All queries in the 10-500 Millisecond range • Approximately 2000 concurrent users • Over 500 Queries per Second (sustained) • Updates once a day may only take several minutes • Index needs to be refreshed (SQL: CONTAINS) • Phrases search • Extensive Wildcard queries (leadingwithpandynast) 	<p>Options available 1999</p> <ul style="list-style-type: none"> • Pretty much no options available • ORACLE and DB2 did not support Tokenized Index • MySQL would not support the table size required <p>The first implementation in C was an embedded version of what is now called BlackRay. The implementation was done on Solaris with 64 Bit UltraSparc (Sun Ultra 10)</p>	<p>Options evaluated in 2005</p> <ul style="list-style-type: none"> • ORACLE 10g with Oracle Text <ul style="list-style-type: none"> • Worst case search performance in the tens of minutes • Lists of the 1TB+ Index takes hours or days... • FAST Search and Transfer (now Microsoft) <ul style="list-style-type: none"> • Extremely hardware intensive, 48 Sun V280 Servers required • Not transactional, tons data in indexing • PERST by McObject • Thunderstyle <ul style="list-style-type: none"> • Well, lets say Deutsche Telekom could not afford it.
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Subtitles

- ← → # slide
- [00:00 00:01](#) 1 BlackRay - the open source data engine
 - [00:27 00:28](#) 2 Presentation Agenda
 - [01:18 01:19](#) 3 Brief BlackRay History
 - [01:20 01:21](#) 4 What is BlackRay?



Pripremimo prezentaciju

- `mkdir media/my_presentation/`
- `www.sh`
 - Mirror script za video+pdf prezentacije
 - `$ clive, cclive, wget`
 - Convert video to `.ogv` (Ogg Theora)
- `Symlink presentation.pdf video.ogv`
- `hCalendar.html`
 - Author, summary, url, location, date, description
- `./bin/mplayer.pl media/my_presentation/`
- `github commit & share for fun&profit !`



Enkodiranje video datoteka

- mp4 (H.264 / ACC):

```
ffmpeg -i INPUTFILE -b 1500k -vcodec libx264  
-vpre slow -vpre baseline -g 30  
"OUTPUTFILE.mp4"
```

- webm (VP8 / Vorbis):

```
ffmpeg -i "INPUTFILE" -b 1500k -vcodec libvpx  
-acodec libvorbis -ab 160000 -f webm -g 30  
"OUTPUTFILE.webm"
```

- ogv (Theora / Vorbis):

```
ffmpeg -i "INPUTFILE" -b 1500k -vcodec  
libtheora -acodec libvorbis -ab 160000 -g 30  
"OUTPUTFILE.ogv"
```



Open Source

- Scratching my own itch
- Building on work of others

<http://www.ffmpeg.org/>

<http://www.mplayerhq.hu/DOCS/tech/slave.txt>

<http://sdl.perl.org/>

<http://www.bbc.co.uk/blogs/rad/2009/08/html5.html>

<http://jquery.com/>

<http://sorgalla.com/projects/jcarousel/>

<http://microformats.org/wiki/hcalendar-cheatsheet>



Linkovi

- HTML5TV archive:
 - <http://html5tv.rot13.org/>
- Source code
 - <https://github.com/dpavlin/HTML5TV>
 - github pull requests dobrodošli!
- My blog
 - <http://blog.rot13.org/>

