



Digital
Publishing
Summit
Europe

Bones

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Berlin

The Milestone Concept



- Credit card size
- 5 keys
- Long battery runtime, tough speaker
- Daily business: Books, notes, time management, radio
- Versatility: Color reader, barcode reader, game engine via Lua, WLAN

This Presentation



1) Tech Part: Solution to the resource gap



2) Outlook: Make a player talk more natural

...so please stay awake during the tech part

The Resource Gap



We have

- No memory,
- No processing power,
- No place on the shoulder of a giant (libraries, operating system, etc.)

How to get on
the moon?

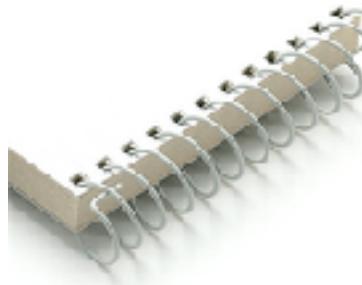


Solution: Divide And Conquer

Run through the book code..

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE html>
<html xmlns:epub="http://www.idpf.org/2007/xhtml"
      xmlns: schema="http://schema.org/" lang="en"
      charset="utf-8"
      href="Hachette.epub">
```

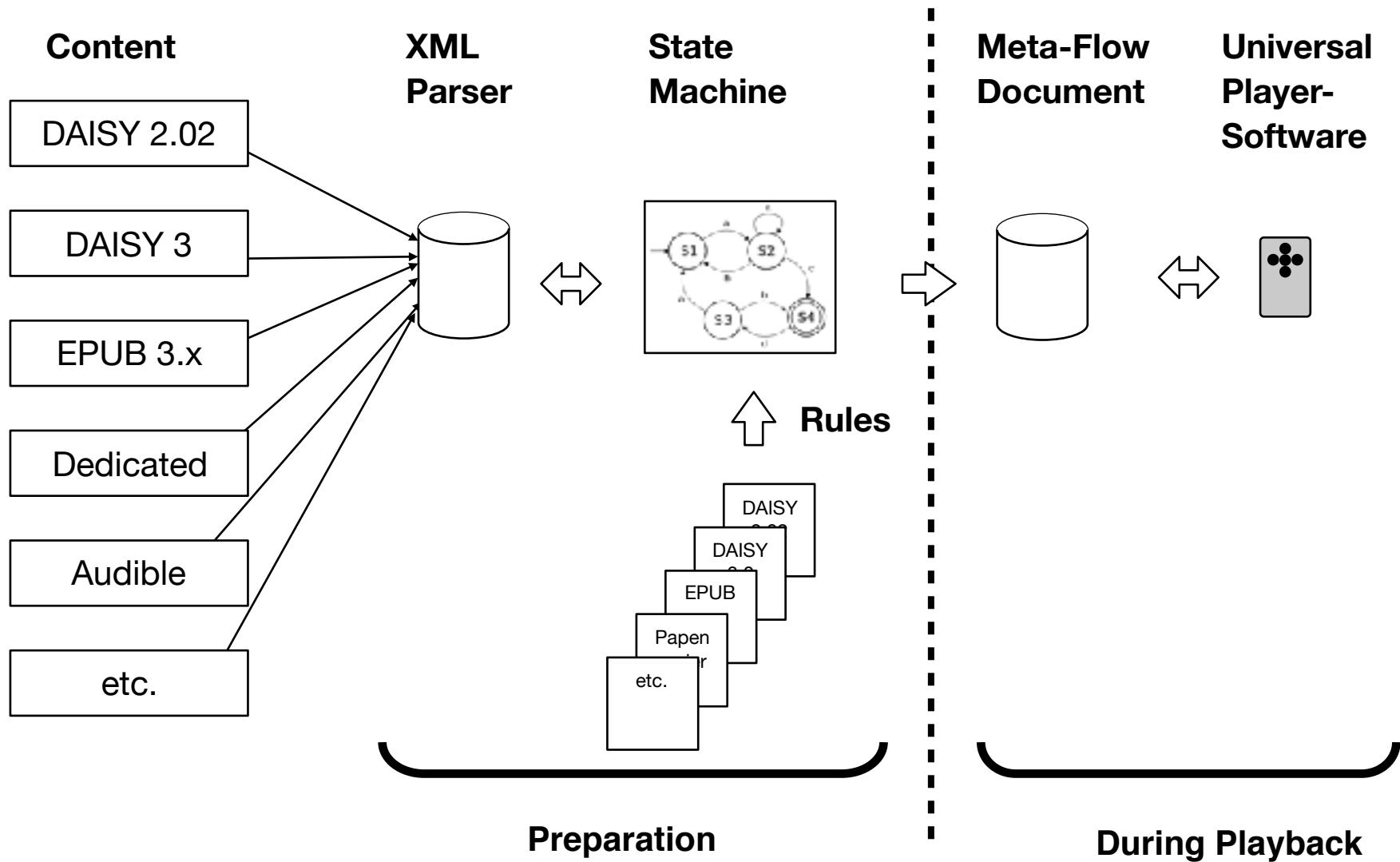
..according to the desired spine..



..describe the
relevant content
to a CPU from
the last century.
Skip, skip, skip.

```
.....  
TXEident1-3.xhtml  
TXFsommaire.xhtml  
H1_536_555  
TXT637_647  
TXT750_763  
TXT869_886  
TXT995_1013  
TXT1112_1124  
TXT1223_1238
```

Make This Approach Universal



Example 1: OPF Rules

```
TOKEN_STATE_MACHINE rules_opf[] = {
    // Process metadata
    {0, TOK_METADATA, func_2016a_dummy, 5, 0,
     5, TOK_EPUB_TITLE, func_2016a_text_xhtml, 5, 0,
     5, TOK_EPUB_CREATOR, func_2016a_text_xhtml, 5, 0,
     5, TOK_TEXT, func_2016a_text_xhtml, 5, 0, // Add first
     5, TOK_EPUB_TITLE_OFF, func_2016a_text_xhtml, 5, 0,
     5, TOK_EPUB_CREATOR_OFF, func_2016a_text_xhtml, 5, 0,
     5, TOK_METADATA_OFF, func_2016a_dummy, 0, 0,
    // Process manifest: Collect entries in list
    {0, TOK_MANIFEST, func_2016a_mani_root, 1, 0,
     // Process one item entry in manifest. The order of sub-elements does
     {1, TOK_ITEM, func_2016a_mani_prepare, 2, 0,
      2, TOK_ID, func_2016a_mani_id, 2, 0,
      2, TOK_HREF, func_2016a_mani_href, 2, 0,
      2, TOK_MFDIA_TYPE, func_2016a_mani_m_type, 2, 0,
      2, TOK_SLASH, func_2016a_mani_entry, 1, 0, // Either sl
      2, TOK_ITEM_OFF, func_2016a_mani_entry, 1, 0,
     1, TOK_MANIFEST_OFF, func_2016a_dummy, 0, 0,
    // Process spine
    {0, TOK_SPINE, func_2016a_dummy, 10, 0,
     10, TOK_ITEM_REF, func_2016a_dummy, 11, 10,
     11, TOK_IDREF, func_2016a_spine_id_ref, 10, 10, // Look for id
     10, TOK_SPINE_OFF, func_2016a_dummy, 0, 0,
    // End of table
    {-1, TOK_START, func_2016a_dummy, 0, 0
};
```

Example 2: ncc.html Rules

```
TOKEN_STATE_MACHINE rules_ncc[] = {
    0, TOK_TITLE,           func_2016a_dummy,          1, 0,
    1, TOK_TEXT,            func_2016a_get_title,       0, 0,
    // meta entry
    0, TOK_META,            func_2016a_dummy,          3, 0,
    // meta get total time
    3, TOK_NCC_TOTAL,       func_2016a_dummy,          4, 0,
    4, TOK_CONTENT,         func_2016a_total_time,      0, 0,
    4, TOK_SLASH,           func_2016a_dummy,          0, 0,
    4, TOK_CLOSING,         func_2016a_dummy,          0, 0,
    // meta get character coding
    3, TOK_NCC_CHARSET,     func_2016a_dummy,          5, 0,
    5, TOK_CONTENT,         func_2016a_encoding,        0, 0,
    5, TOK_SLASH,           func_2016a_dummy,          0, 0,
    5, TOK_CLOSING,         func_2016a_dummy,          0, 0,
    // meta get set info (how many discs)
    3, TOK_NCC_SETINFO,     func_2016a_dummy,          6, 0,
    6, TOK_CONTENT,         func_2016a_setinfo,        0, 0,
    6, TOK_SLASH,           func_2016a_dummy,          0, 0,
    6, TOK_CLOSING,         func_2016a_dummy,          0, 0,
    // meta other: Get back to state 0
    3, TOK_ANY,              func_2016a_dummy,          0, 0,
    // Headers
    0, TOK_H1,               func_2016a_header,         20, 0,
    0, TOK_H2,               func_2016a_header,         20, 0,
    0, TOK_H3,               func_2016a_header,         20, 0,
    0, TOK_H4,               func_2016a_header,         20, 0,
```

Reasons For This Approach

We have:

- Tremendous reduction of complexity at runtime. Split the playback part from the analysis part.**
- Flexible for additional features or formats, without growing in complexity,**
- Find a way around problems in books before playing them.**

We Publish Our Source Code. Why?

- We make our living from hardware,**
- Mutual advantage between developers.**

Part 2: Make A Book Reader More Natural

**Golden Rule: Orient oneself at
the solution for the sighted.**

Example 1: Emphasis / Stress In Speech

Beim Balken herein tragen
zerbrachen sie das Fenster. „Sie
hätten ja auch das Fenster *öffnen*
können! Das wird sie teuer zu stehen
kommen!“, sagte sie. Er bestätigte:
„Mit Sicherheit!“



Work with tags to help TTS:

„Sie hätten ja auch das Fenster *öffnen* können!“

```
\Rpit=109\RSPD=65\VCT=105\ öffnen \RST\
```

Pitch up to 109%

Speed down to 65%

Voice shaping up to 105%

Back to normal

Feel the difference:

„Sie hätten ja auch das Fenster öffnen können!“

„Sie hätten ja auch das Fenster *öffnen* können!“

„Sie hätten ja auch das *Fenster* öffnen können!“

Also, change narrator voice:

\spk=standard\Beim Balken herein tragen zerbrachen sie das Fenster.

\spk=female_1\Sie hätten ja auch das Fenster *öffnen* können!

Das wird sie teuer zu stehen kommen!

\spk=male_1\Mit Sicherheit!

Voice
information could be
added

2.2. Use fly-by intuition for playback at full speed

Element

- For example there is the bullet readout problem
- How about footnotes[1] or

Links?

- And then there are tables

	A	B	C
1			
2			
3			

Side notification..



Vibration impulse



Slight, warm beep



Slight double-tone
**..pause and left arrow
to enter**

Why Do We (Still) Do The Whole Thing?

Our customers to be asked. However:

- 2017 the 2nd best company year ever, since 2003
- Customers like dedicated hardware
- Partial tech advantages: Runtime, physical memory cards
- Partial marketing advantage: We control our own adoption speed, unlike the consumer market

Bones

**Thank
You**