DECENTRALISING POWER: HOW WE WANT TO KEEP CALLECTOR ETHICAL

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OUTLINE

• Where the CALLector architecture is now
• Addressing the ethical issues
CALL ECTOR ARCHITECTURE

- Basic idea: social network for creating and using CALL content

<table>
<thead>
<tr>
<th>Social network</th>
<th>Content</th>
<th>Deployment platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadat a votes etc</td>
<td>Course 1</td>
<td>Platform 1</td>
</tr>
<tr>
<td>Metadat a votes etc</td>
<td>Course 2</td>
<td>Platform 2</td>
</tr>
<tr>
<td>Metadat a votes etc</td>
<td>Course 3</td>
<td>Platform 3</td>
</tr>
<tr>
<td>Metadat a votes etc</td>
<td>Course 4</td>
<td></td>
</tr>
</tbody>
</table>
**INITIAL INSTANTIATION OF ARCHITECTURE**

- Basic idea: social network for creating and using CALL content

<table>
<thead>
<tr>
<th>Social network</th>
<th>(Not yet in place)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td></td>
</tr>
<tr>
<td>Which language?</td>
<td>Which movie?</td>
</tr>
<tr>
<td>Regulus + Alexa</td>
<td>(...)</td>
</tr>
<tr>
<td>LARA</td>
<td>(…)</td>
</tr>
<tr>
<td><strong>Deployment platforms</strong></td>
<td></td>
</tr>
<tr>
<td>Regulus + Alexa</td>
<td>LARA</td>
</tr>
</tbody>
</table>
**REGULUS/ALEXA CONTENT**

Section of “Quel Pokémon”, Alexa game designed by two seven year olds.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metadata</td>
<td>CourseType</td>
<td>alexa_text</td>
</tr>
<tr>
<td>Metadata</td>
<td>Identifier</td>
<td>quelpokemon</td>
</tr>
<tr>
<td>Metadata</td>
<td>Invocation</td>
<td>quelpokemon</td>
</tr>
<tr>
<td>Metadata</td>
<td>L2</td>
<td>French</td>
</tr>
<tr>
<td>Metadata</td>
<td>L1</td>
<td>French</td>
</tr>
<tr>
<td>Metadata</td>
<td>HelpStrategy</td>
<td>3Hints</td>
</tr>
<tr>
<td>Section</td>
<td>pokémon</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Quel Pokémon est en metal, avec des yeux rose, à stage 2 ?</td>
<td>metagross</td>
</tr>
<tr>
<td>2</td>
<td>Il est orange, feu sur sa queue, des griffes à stage 1.</td>
<td>charmelion</td>
</tr>
<tr>
<td>3</td>
<td>Un type eau, un poisson avec une couronne sur sa tête, les lèvres rose et il est rouge. Il a un moustache jaune.</td>
<td>magikarp</td>
</tr>
<tr>
<td>4</td>
<td>C'est un Pokémon qui vol. Il est rouge et blanc. Il est grand.</td>
<td>latias</td>
</tr>
</tbody>
</table>
REGULUS/ALEXA PLATFORM

Compiler

Runtime system (Amazon)

Lambda function
Generic Python code tables
Interaction model
Tuning recognition functionality
Multimedia files
Recorded audio

AWS
Alexa
S3
Section of Litli prinsinn

Þegar ég var sex ára sá ég einu sinni stórkostlega mynd í bók um frumskóginn sem hét "Sannar sögur". Hún sýndi kyrkislöngu sem var að gleypa villidýr. Hér er eftirlíking af myndinni.

Í bókinni var sagt: "Kyrkislöngur gleypa bráðina í heilu lagi án þess að tyggja hana. Síðan geta þær ekki hreyft sig og sofa í hálft ár á meltunni."
Marked-up version of *Litli prinsinn*

- Þegar ég var sex ára sá ég eiu sinni stórkostlega mynd í bók um frumskóginn sem hét "Sannar sögur". Hún sýndi kyrkislönugu sem var að gleypa villidýr. Hér er eftirlíking af myndinni.
- Í bókinni var sagt: "Kyrkislönur gleypa bráðina í heilu lagi án þess að tyggja hana. Síðan geta þær ekki hreyft sig og sofa í hálft þar á meltunni."
- Ëg hugsaði þá miklið um ævintýri frumskóganna og mér tókst sjálftum, með lítþlynti, að teikna fyrstu myndina mina. Það var mynd eitt. Hún er svona:
- Ëg sýndi fullorðna fólkini listaverkið og spuroð hvort það væri hrætt við myndina.

**Þegar (77 occurrences)**

- En ég hefi þegar hitt konung sem...
- Það er til að geta heilsað þegar mér er fagnað.
- Úr því að ég á heima á einni þeirra, og úr því að ég hlæ á eina þeirra, þá verður það fyrir þig eins og alla stjórnurara hlæi þegar þú hórfir á himininn á kvöldin.
- Þegar þú finnur gimstein sem enginn á, átt þú hann.
- Þegar hádegi er í Bandaríkjunum er sólin að setjast í Frakklandi.
- Þeir koma þegar aftur?
SOCIAL NETWORK

• Doesn’t exist yet

• Examples of functionalities we want to support
  • Metadata
  • Indexing
  • Likes
  • Comments
  • (…)
**ETHICAL ISSUES: META-PRINCIPLE**

- Although we probably *won’t* succeed, plan for an ethical outcome in the case where we *do* succeed
- Ethical issues are interesting in the case where we succeed
- If people don’t conform to this meta-principle, all successful projects will be unethical
- (Maybe a corollary of Kant’s Categorical Imperative?)
ETHICAL ISSUES

• We should fulfil our ethical obligations
• Parties we have obligations to
  • Ourselves
  • Swiss National Science Foundation (funder)
  • Geneva University
  • External system–level collaborators
  • Content creators
  • Content users
OBLIGATIONS TO OURSELVES

• One of us (Hanieh) needs to get a PhD out of the project
• All of us need to publish
• We would like to keep our jobs
OBLIGATIONS TO FUNDER

- We need to do the work described in the proposal
- We need to publish
OBLIGATIONS TO GENEVA UNIVERSITY

• We need to leverage the results of the project to bring in money
• We need to publish
• We need to create tools useful for teaching
OBLIGATIONS TO EXTERNAL SYSTEM-LEVEL COLLABORATORS AND CONTENT CREATORS

• We need to provide stable, maintainable hosting for content

• We need to provide stable, maintainable hosting for user data

• We need to respect the system–level collaborators’ and content constructors’ IP rights

• We need to respect the system–level collaborators’ and content constructors’ rights as members of the social network
OBLIGATIONS TO CONTENT USERS

• We need to provide stable, maintainable hosting for content
• We need to provide stable, maintainable hosting for user data
• We need to respect the content users’ rights as members of the social network
SCENARIO 1: TYPICAL ACADEMIC PROJECT

• Keep haphazardly extending system to support
  • PhD thesis
  • Writing of papers
  • Data collection
  • Some users in enetCollect etc

• Write some basic user documentation

• Messy research code which only one person understands

• A year or two after funding runs out, infrastructure stops working
IF WE WANT TO MAKE SCENARIO 1 HAPPEN...

- It will happen by itself if we don’t do anything special
NEGATIVES AND POSITIVES OF SCENARIO 1

Negatives
• System-level collaborators and content creators will feel betrayed
• Content users will feel disappointed
• Swiss National Science Foundation will feel (mildly) disappointed

Positives
• We will have less work to do
• Short-term, we will get more published
SCENARIO 2: MOVE TO COMMERCIAL PROJECT

- Careful extension of system to support
  - Stable and useful platform
  - Substantial and growing social network
  - Papers/demos at conferences to increase visibility
  - (PhD thesis)

- Proper user documentation
- Well-maintained code moved into a private repository
- Goal: sell network to whoever’s willing to buy it
• Prioritise growth of social network
  • Worth of site mostly depends on number of users

• Make it easy to create content
  • Important to have tools to simplify content creation process
  • Easiest approach: integrate with Alexa “template” mechanism

• Make site usage addictive
  • More gamification: likes, comment threads, leaderboards etc

• Make sure that content hosting is reliable
  • Deploying on Alexa minimizes downtime
NEGATIVES AND POSITIVES OF SCENARIO 2

Negatives

- System-level collaborators and content creators will feel betrayed
- If it doesn’t work, we will feel disappointed

Positives

- If it does work, we might get rich
- University likes commercialisation
- Funder likes commercialisation
- Users will be negative about changes but pleased the site still exists
SCENARIO 3: MOVE TO OPEN SOURCE PROJECT

• Careful extension of system to support
  • Stable and useful platform
  • Substantial and growing social network
  • PhD thesis
  • Papers/demos at conferences

• Proper user documentation

• Well-maintained code kept as open source

• Goal: transform into viable, self-maintaining open source project
IF WE WANT TO MAKE SCENARIO 3 HAPPEN...

- Prioritise long-term usability, independence, decentralisation

- Make sure that code is portable
  - Should be able to run on several platforms: Alexa, Google Home, own web platform
  - Runtime Python code should be easy to port
  - Compiler is currently in Prolog, needs to be moved to Python

- Make sure that code is well-documented and maintainable
  - Need to be more serious about documentation, code reviews etc
  - Need to have multiple people involved in maintaining code

- Design a distributed social network
  - Hosted on multiple servers, not all on one server controlled by us
NEGATIVES AND POSITIVES OF SCENARIO 3

Negatives

• If it doesn’t work, we will feel disappointed

• University may feel disappointed → our jobs may be less secure

Positives

• System–level collaborators and content creators will be happy

• Users will be happy

• Funder will be happy
SUMMARY OF ETHICAL TRADEOFFS

• Preferences
  • Typical academic scenario is the least good outcome, but also the least challenging
  • Open source scenario is better for system-level collaborators and content developers
  • Commercialisation scenario is better for university
  • Commercialisation scenario is better for us (if we are thinking selfishly)

• Tension between open source scenario and commercialisation scenario

• It is in principle ethically right to aim for the open source solution
  • “Greatest good of the greatest number”

• Short-term incentives favour default and commercialisation solutions
THANK YOU!