Your roadmap towards web-based tooling

Jonas Helming (jhelming@eclipsesource.com)
Maximilian Koegel (mkoegel@eclipsesource.com)
Disclaimer - strategic content ahead!
What is web-based, what is cloud-based?

=> Tool is deployed in the cloud and accessed via the browser
Why web-based?

1. Modern UI technology
2. Simplified deployment
Challenges with the migration to the cloud

● **Web-based specific**
  ○ fewer tool components available
  ○ technology switch
  ○ More diversity and volatility

● **Migration specific**
  ○ effort doublcation
  ○ existing customers
  ○ desktop-tool maintenance
Our plan!

Features available in our tool

- **Time in months**
  - 0 2 4 6 8 10

- **Feature Support Level**
  - 0 25 50 75 100

- **Web**
- **Desktop**
What happened...

Features available in our tool

<table>
<thead>
<tr>
<th>Feature Support Level</th>
<th>Time in months</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
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<tr>
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<tr>
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<td>6</td>
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<tr>
<td>100</td>
<td>8</td>
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<td>150</td>
<td>10</td>
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</tbody>
</table>

- Web
- Desktop
Mitigations

- Define MVP and increments
- Develop incrementally
- Reuse
  - available technologies
  - your own components
  - single source
Evaluate Use Cases against NFRs

- Use Case A: + + + $$$
- Use Case B: + + $
- Use Case C: + - $$
Criteria to evaluate the benefits

NFRs:

- Installability
- Portability
- Performance and responsiveness
- Usability
- Cost
- Maintainability
Best practice examples for MVPs

- Review
- Training
- Playground
Methods to support iterative migration and reuse

- Backporting
- Single-sourcing
- Declarative artifacts
- Extract services
- Build standalone
- Reuse
Backporting

- **When**: Short-term
- **Method**:  
  - Develop feature web-based  
  - Retrofit into desktop-based solution
- **Advantages**:  
  - No “sunk cost”  
  - Shared codebase
- **Risks/Challenges**:  
  - Interaction with other components (selection, DND)  
  - Look-and-feel

⇒ Related talk: “Modernizing Eclipse RCP/e4 applications and tools”, Wednesday 11:15
Single-Sourcing

- When: Short-term
- Method: Share code-base
- Advantages:
  - Shared maintenance cost
  - No migration cost
- Risks/Challenges
  - Increased initial development cost
Declarative Artifacts

- When: Short- to medium-term
- Method: Extract information from code
- Advantages:
  - Declarative artifact can be shared
  - Lowers migration and maintenance cost
- Risks/Challenges
  - Expressiveness
  - Refactoring cost
Extract services

- **When:** Short- to medium-term

- **Method:** Extract business logic into (deployable) services

- **Advantages:**
  - Service can be shared
  - Lowers migration and maintenance cost

- **Risks/Challenges**
  - (Remote) performance
  - Refactoring cost
Reuse

- When: Medium- to long-term
- Method: Reuse existing web-based components
- Advantages:
  - Lowers maintenance cost
  - Lowers technology risk
- Risks/Challenges
  - Availability
  - Integration
  - Usability
When?

- **Now:** Define a strategy and timeplan
- **Short-term:** Consider for architectural decisions
- **Mid-term:**
  - Prepare architecture for migration iteratively
  - Migrate high-value use cases iteratively
  - Single-source components
- **Long-term:**
  - Migrate all use cases iteratively
  - Deprecate desktop-based solution
Check product feasibility up-front

Build **Proof-Of-Concept** prototype for all key features

→ Shows feasibility
→ Learning experience for development team
→ Show weaknesses of target platform
Technologies to consider

- Eclipse Theia and Eclipse Che
  - Platforms to Build IDE Frontend and support web-based Multiuser IDEs
  - ECE: “Building Web-based Modeling Tools with Theia and Che”, Today, 16:15, Theater Stage

- EMF.cloud:
  - Framework to lift EMF to the web
  - ECE: “Lifting the greatness of EMF into the cloud with EMF.cloud”, Wednesday 12:35

- LSP:
  - Protocol to support any language in the browser without the need to rewrite editor

- GLSP
  - Platform to build graphical editors
  - ECE: “Diagrams in web and space with GLSP”, Thursday 15:10, Bürgersaal 2

- JSON Forms / EMF Forms
  - Declarative Forms
  - ECE: “Data-centric editors for domain experts with EMF Forms”, Wednesday 10:15, Theater

- XText, Sprotty, ...
Key takeaways

- Migrate iteratively - use-case by use-case
- Consider proposed methods to ease iterative migration:
  - Backporting
  - Single-sourcing
  - Declarative artifacts
  - Extract services
  - Build standalone
  - Reuse

- Due Now:
  - Analyse use-cases, define MVP and increments
  - Define a strategy
  - Build POC
Please evaluate this session with +1.

Thank you!