Apache Royale
Hello, Royale!

29.09.2020 18:55 CEST

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Your presenter

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Apache Royale

- An SDK for developing data-driven applications

- From one code base, export to run
  - On any browser using JavaScript
  - On the desktop, using the Adobe AIR runtime or similar
  - On mobile devices through Apache Cordova

- Extensible to WASM, native iOS, Android; new technologies as they appear
How we got here

Macromedia Flex → Adobe Flex

2005 → 2011

2017

The Glory Years
Under the hood

- **MXML declarative language** for defining and powering the user interface. Makes possible many of Royale's cool features
- **ActionScript** for data manipulation, graphics, functions that support the front end
- **AMF (ActionScript Message Format)** - powerful tool for remote object calls using JSON, and for local storage
- **Frameworks** like **Crux** to help develop efficient web applications - deploy Inversion of Control (IOC), dependency injection...
Concepts

- **OOP** - break down your software into bite-sized problems to create one object at a time.
  - Modular design
  - Strictly-typed properties
Concepts

- PAYG
  - more composition, less inheritance
  - Smaller footprint
  - Strands and beads

```xml
<j:TextInput>
  <j:beads>
    <j:TextPrompt prompt="Only numbers"/>
    <j:Restrict pattern="[\^0-9]"/>
  </j:beads>
</j:TextInput>
```
Cool Features

- Data binding
- Event Bubbling
- Component Sets*
- ViewStates
- ItemRenderers
- Use external libraries

*Carlos Rovira presenting Thursday on the Apache Jewel component set
<j:initialView>
  <j:View id="view">
    <j:states>
      <js:State name="login" />  
      <js:State name="loggedIn" />  
    </j:states>
    <j:beads>
      <js:SimpleStatesImpl/>  
    </j:beads>
    <j:Card id="loginForm" includeIn="login">  
      <html:H1 text="Royale Login"/>
      <j:TextInput id="username" text="someuser"/>
      <j:TextInput id="password" text="somepass"/>
      <j:beads>
        <j:PasswordInput/>  
      </j:beads>
      </j:TextInput>
    </j:Card>
  </j:View>
</j:initialView>
ItemRenderers
**External library:**

**Apache eCharts** is an incubating project. Hierarchical JSON format to declare components, styles, data, and interactions.

Five minutes' work and twenty lines of code to add eCharts to a Royale app, using either

- **@Externs** compiler directive
- **mx.external.ExternalInterface**, Royale's implementation of the Flash ExternalInterface
External library:

Example from María Jose Estéve
Royale is for Flex folks

Dealing with the End Of Flash

● Move to some other technology
  ○ Learn new technology
  ○ Rebuild everything

● Migrate to Royale*
  ○ Gentle Flex => Royale learning curve
  ○ Reuse a ton of what you already have
  ○ Leverage existing skills
  ○ Much smaller footprint
  ○ Much faster data loading and display -

*Alina Kazi presenting Wednesday: Moving an app from Flex to Royale
Royale is for everyone else, too

- (ymmv) strongly typed properties
- OOP
- Frameworks and component sets
- Incorporate the universe of existing JS libraries

Carlos Rovira presenting Thursday: Starting from a blank file
Oh, and it's very fast

Royale VS ReactJS

DevTools - unhurdle.github.io/spectrum-royale/

Range: 2.32 s – 3.56 s

DevTools - opensource.adobe.com/spectrum-css/components/accordion/

Range: 2.55 s – 4.36 s
Summing up:

Code once, run anywhere

Code for the future

Open source! No "Flash extinction event" ahead of us
Thank you for your attention!

Questions?

royale.apache.org