static void
    _f_do_barnacle_install_properties(GObjectClass *gobject_class)
    {
        GParamSpec *pspec;
        /* Party code attribute */
        pspec = g_param_spec_uint64
            (F_DO_BARNACLE_CODE,
             "Barnacle code.",
             "Barnacle code",
             0,
             G_MAXUINT64,
             G_MAXUINT64 /*
             default value */,
             G_PARAM_READABLE |
             G_PARAM_WRITABLE |
             G_PARAM_PRIVATE);
        g_object_class_install_property (gobject_class,
            F_DO_BARNACLE_PROP_CODE,
           Žan Doberšek
            zdobersek@igalia.com
    WPE
    Current Status & Future

Žan Doberšek
zdobersek@igalia.com
WPE – What It Is
What It Is

- WebKitGTK+’s younger brother
  - Primarily sheds the GTK+ dependency
  - Not bound to any toolkit or platform
- Vanilla Web
  - Adjustable, low-level Web content embedding
What It Is

• Work started in 2014
  • Work presented at the 2014 Hackfest
  • Another update at the 2016 Hackfest
  • I guess we’re on a 2-year schedule now
• Upstreamed to webkit.org in April 2017
Adaptability

- WPE port of WebKit works against interface definitions
  - “Render targets” for composition of Web content
  - “View backends” for device input and visual output management
- Up to deployers to provide platform-specific interface implementations (in a separate, runtime-loadable library)
  - Enables running on a variety of hardware platforms
  - Low-level approach not imposing many limits
WPE – Current Status
Releases

• Stable releases aligned with WebKitGTK+
  • 2-for-1 branch management
  • 2.22 is the current release

• GObject-based API
  • Stabilized
  • Again something shared with WebKitGTK+
The Interface Library

- Started as “libWPEBackend”
  - Renamed to libwpe
- Stabilized API
  - Still could change in the long-term
- Picked up the libxkbcommon dependency
  - Necessary for common keymapping functionality
Reference Backend Impl Library

- **libWPEBackend-fdo**
- Internally uses wayland-egl capabilities
  - “cross-process buffer sharing”
- Provides graphics buffer resource exporting APIs
  - EGLImages
  - wl_resource objects
  - Linux dma-buf information data (soon)
- fdo – freedesktop.org (Mesa)
Testing The Thing

- **MiniBrowser**
  - Simple Web view app, kept inside the WebKit tree
  - Works as a Wayland client
- **Cog**
  - Reference testing browser
  - Can be powered by either GTK+ or WPE port
- **Dyz**
  - Too much Lua
Where It’s Used

- ... that we know of
- Set-Top Boxes
- Home appliances, Entertainment devices
- In-flight, In-vehicle infotainment systems
- Digital signage
WPE – What’s To Do
Disclaimer

• A lot of this has already been in the works
  • With big improvements
• Scope or repetitiveness of these items simply results in repeated or long-term presence on such lists
• All items apply to WebKitGTK+ as well
Multimedia

- MSE, EME
  - Tracking yearly certification suites
- WebRTC
  - OpenWebRTC deserted
  - Praise the libwebrtc overlord
Graphics

- Threaded Cairo painting
  - Relative benefits
- Get the GPU involved
  - Offload painting to that
  - Fonts will be fun
  - Following the trailblazers
- Vulkan by 2020?
- GPU process
Graphics

- WebGL2
  - Work started, then stalled
  - Continued by Apple
- WebGPU
  - Still in the spec phase, no capacity to participate there
  - Would have to be Vulkan-based
  - ANGLE?
Network & Security

• Libsoup coup
  • (We’re the maintainers now)
• HSTS
• Sandboxing
  • Via Flatpak
  • Or DIY on capable platforms
Standards

• EME, WebPackage, ImageBitmap, WebDriver
• Web Predictability
• Easy to adopt commonly-implemented standards
  • <3 WebKit
• Web Platform Tests integration
  • Integrate it into the QA process
JavaScriptCore

- 32-bit JIT maintenance
  - Alas, we need it
- BigInt, class fields
WPE – Weekend Projects
Different Realities

- What do to with AR/VR?
- OpenVR – existing content, but otherwise abandoned
- OpenXR – in spec phase, prototypes available
- Or start embedding Web content into XR (XR browsers)
Android

- Shoddy backend implementation somewhere on my disk
- Still needs a lot of glue on top to integrate into the process model
- Just a prototype – far from being an usable browser or runtime
Questions?