



CERN AppStore

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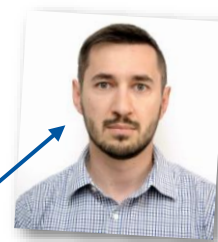
About us



Developers

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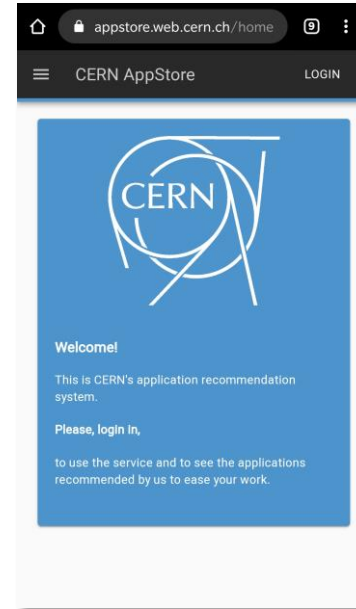


Project manager, Supervisor

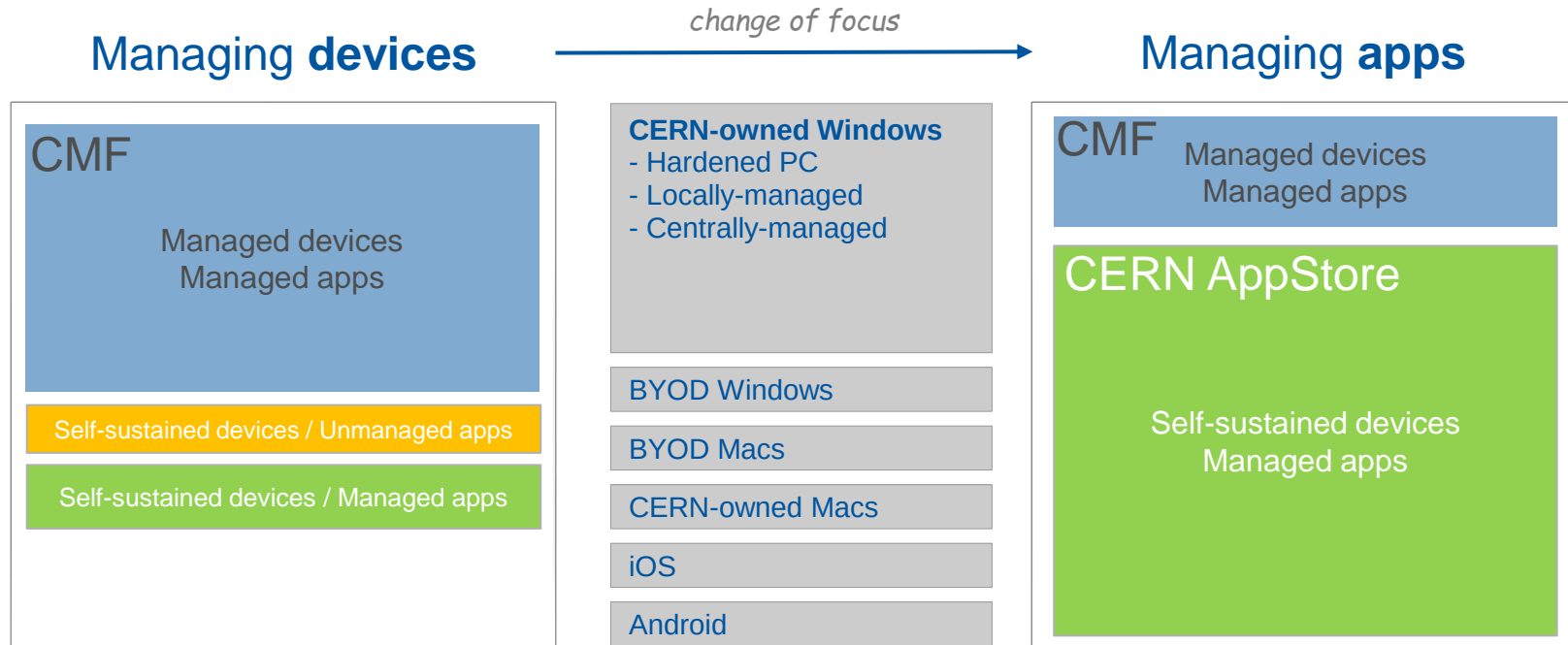
sebastian.bukowiec@cern.ch

Content

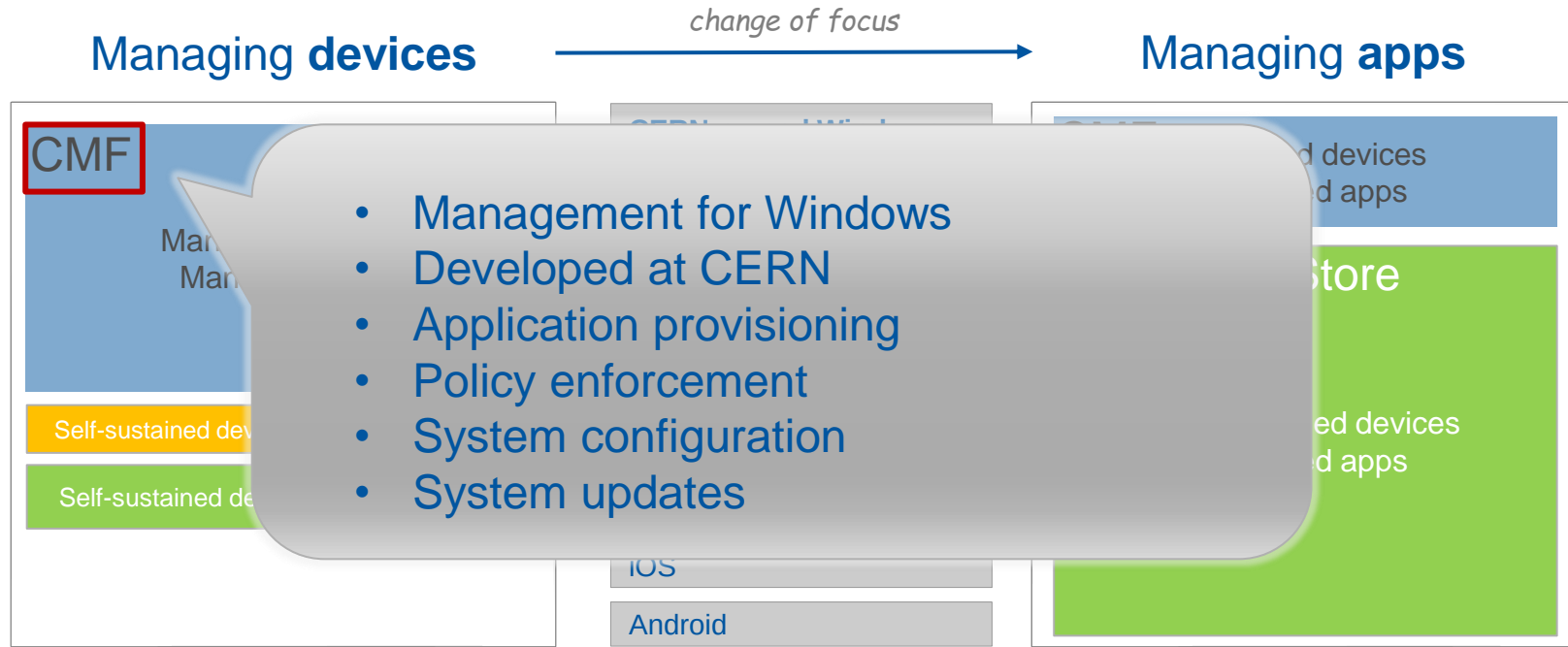
- Focus change
- Objective
- Platforms
- Architecture
- Deployment
- Main features
- Future plans



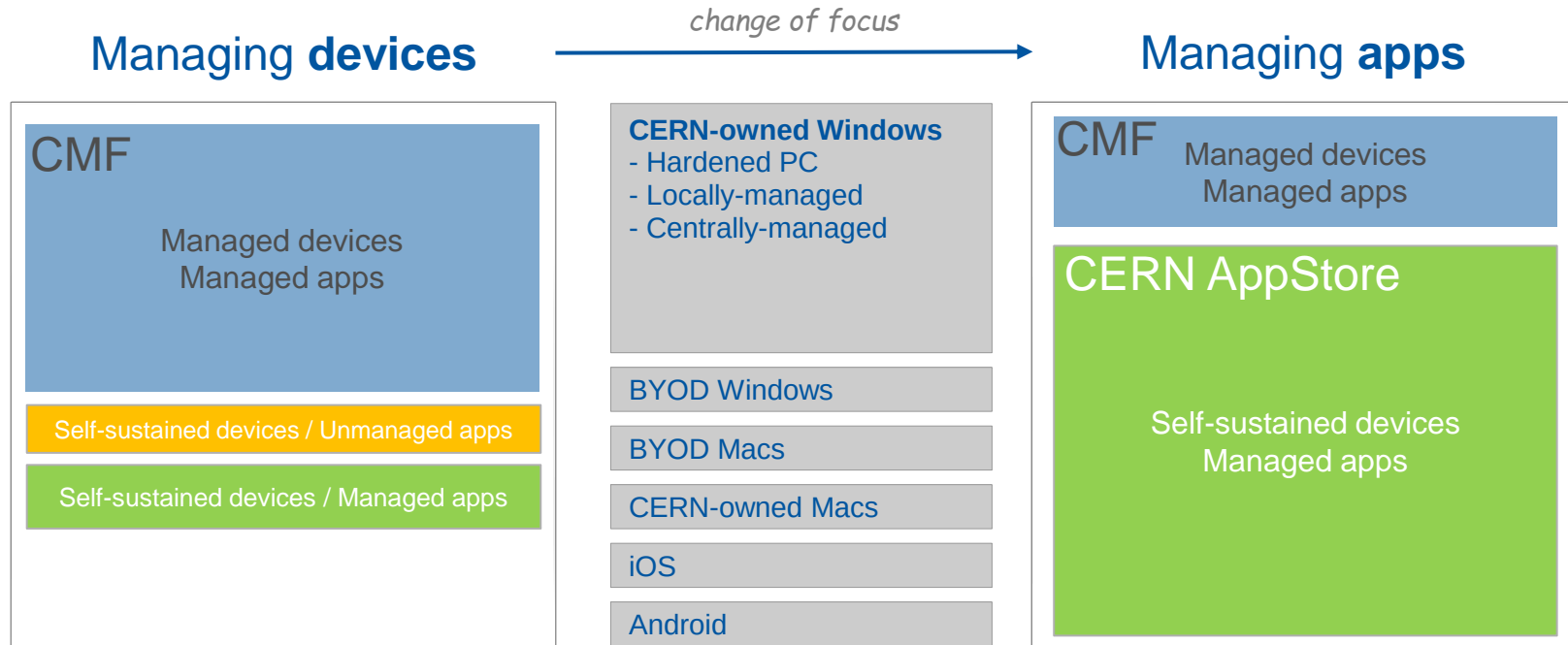
Focus change



Focus change

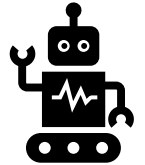


Focus change



Objectives

- Application management
 - Licensed app provisioning
- Remove organizational dependencies:
 - Including domain membership, access to file shares
 - Remote access
- Unified system for application provisioning
 - Multi-platform
(Android, iOS, Windows, Linux)
 - Avoid vendor lock-in
- Benefit from existing distribution tools
 - Platform specific stores
 - Package managers:
(Chocolatey, Flatpak)
- Data privacy protection
 - Collect usage metrics
 - In-house data handling

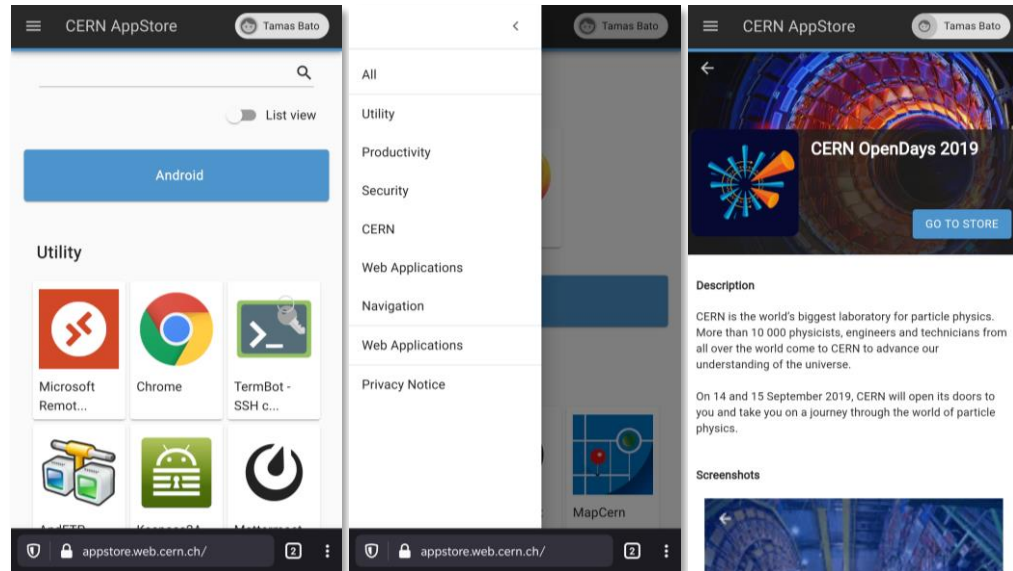


Platforms

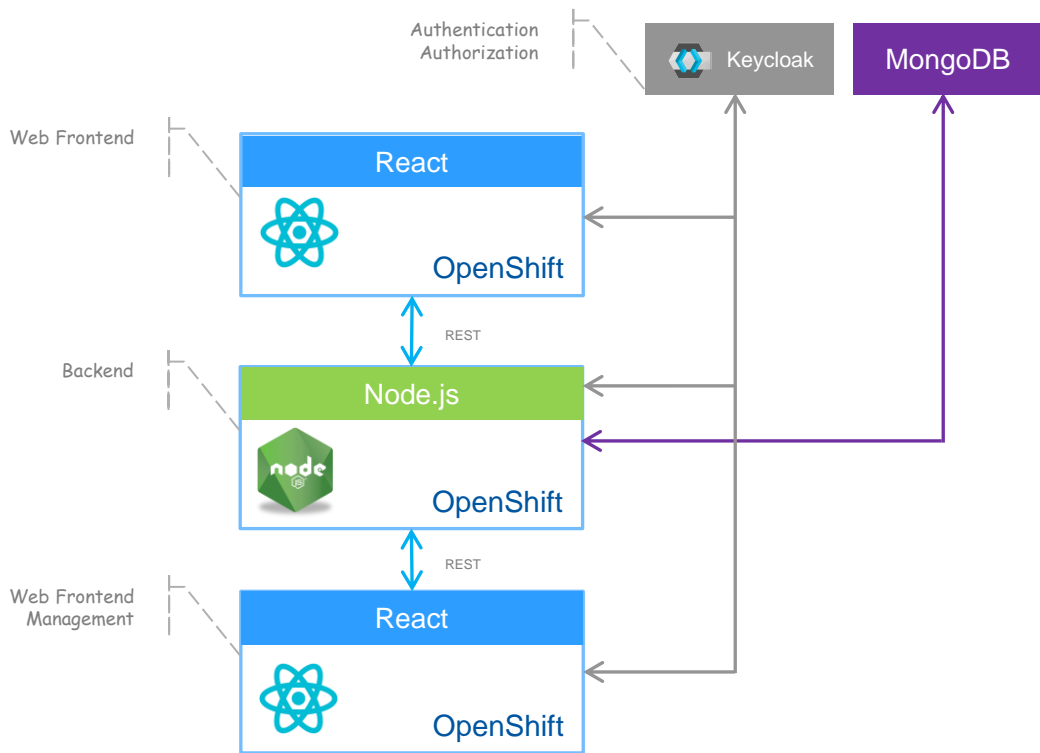
- Mobile devices
- Desktop devices

Platforms – Mobile devices

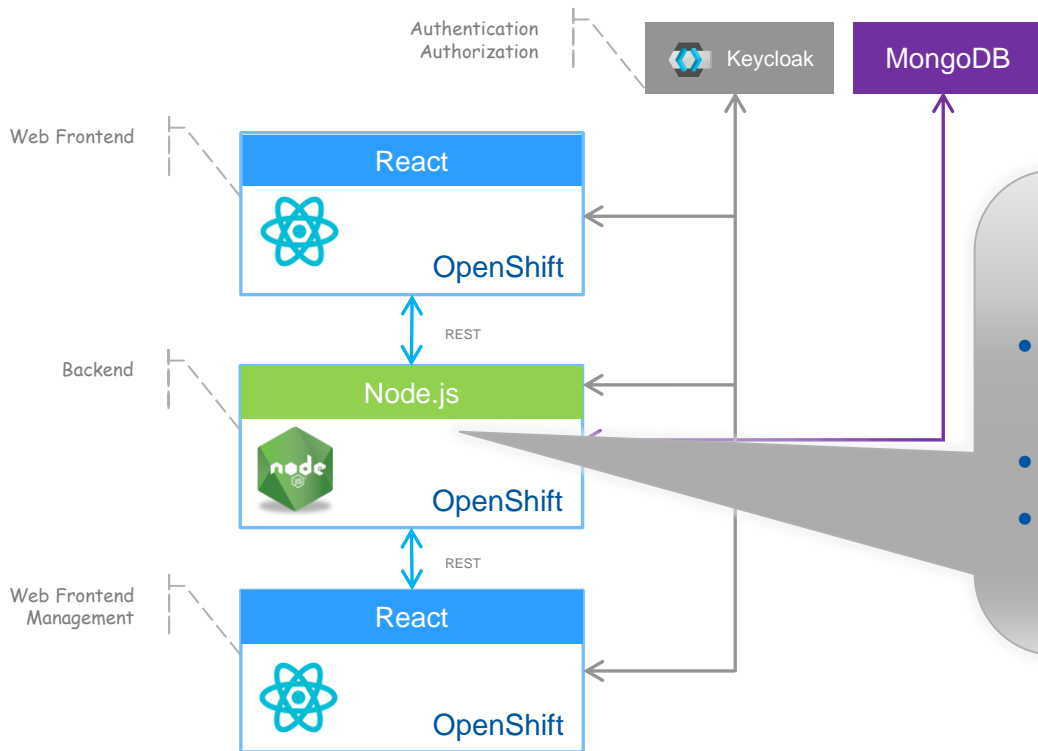
- Web interface
- Application recommendation
 - Using the platforms' native application stores
- (CERN) Web services
- Documentations
- Distribute .apk packages for Android



Architecture for Mobile



Architecture for Mobile

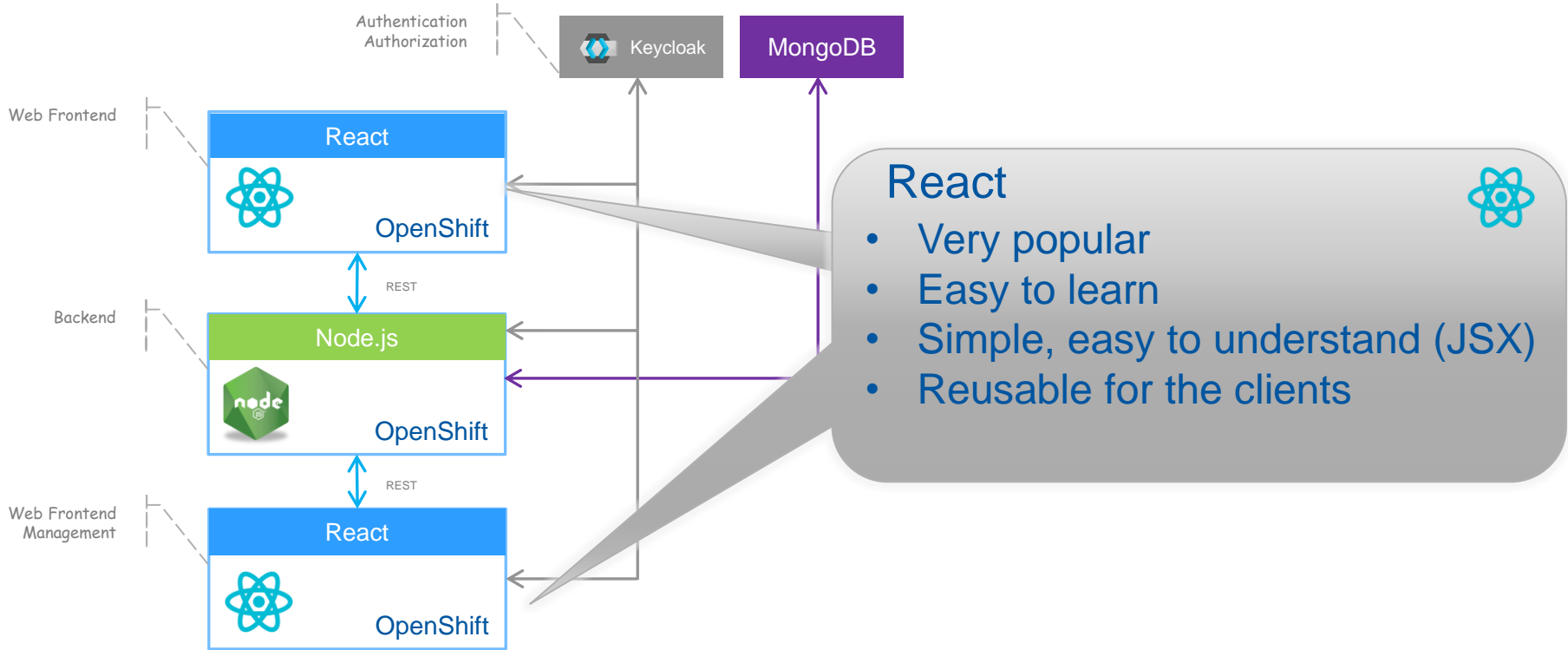


Node.js

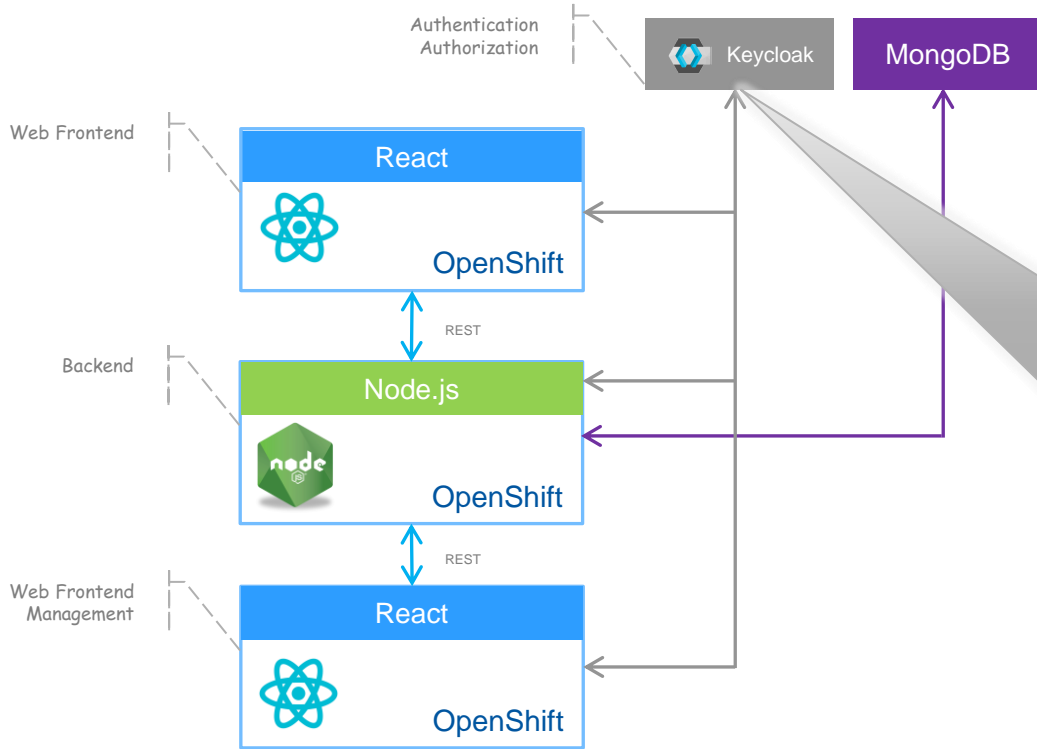


- Same technological stack across the project
- JavaScript
- Easy to find contributors

Architecture for Mobile



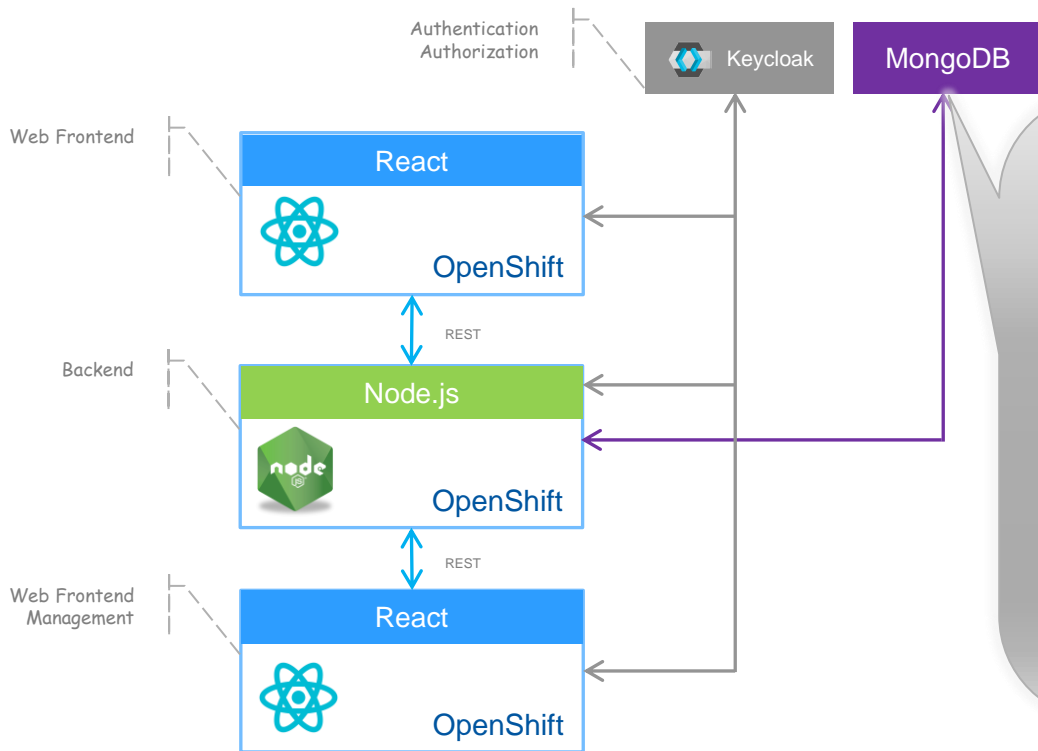
Architecture for Mobile



Keycloak

- New Authentication and authorization service used at CERN
- SSO
- Role management

Architecture for Mobile

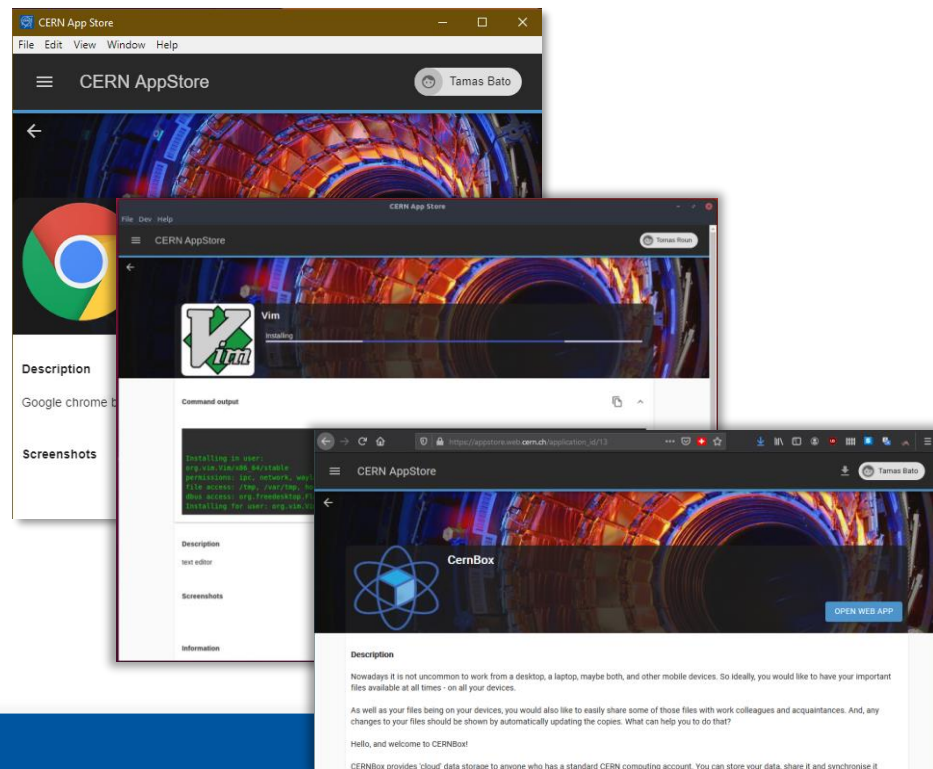


MongoDB

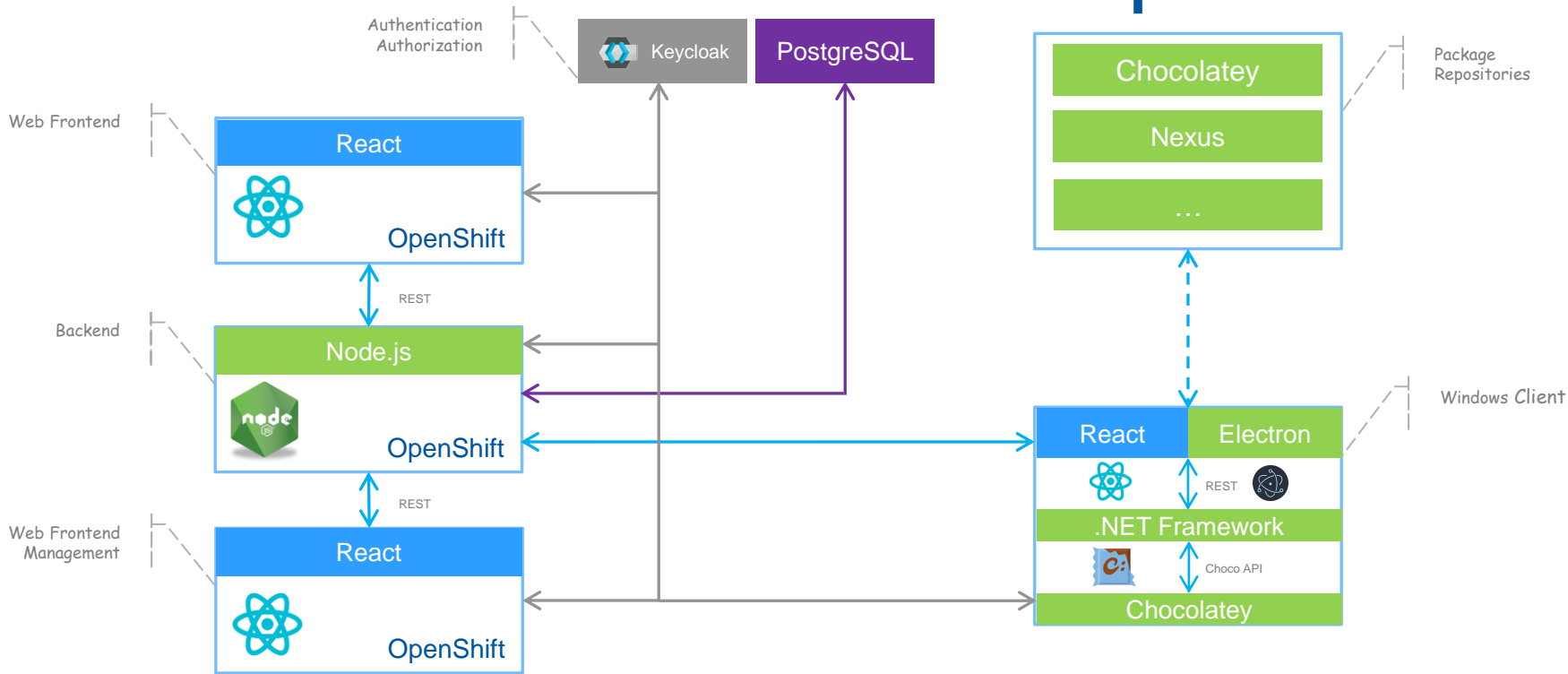
- Document-oriented NoSQL database
- No database schema
 - Allows fast prototyping
- Works well with Node

Platforms – Desktop devices

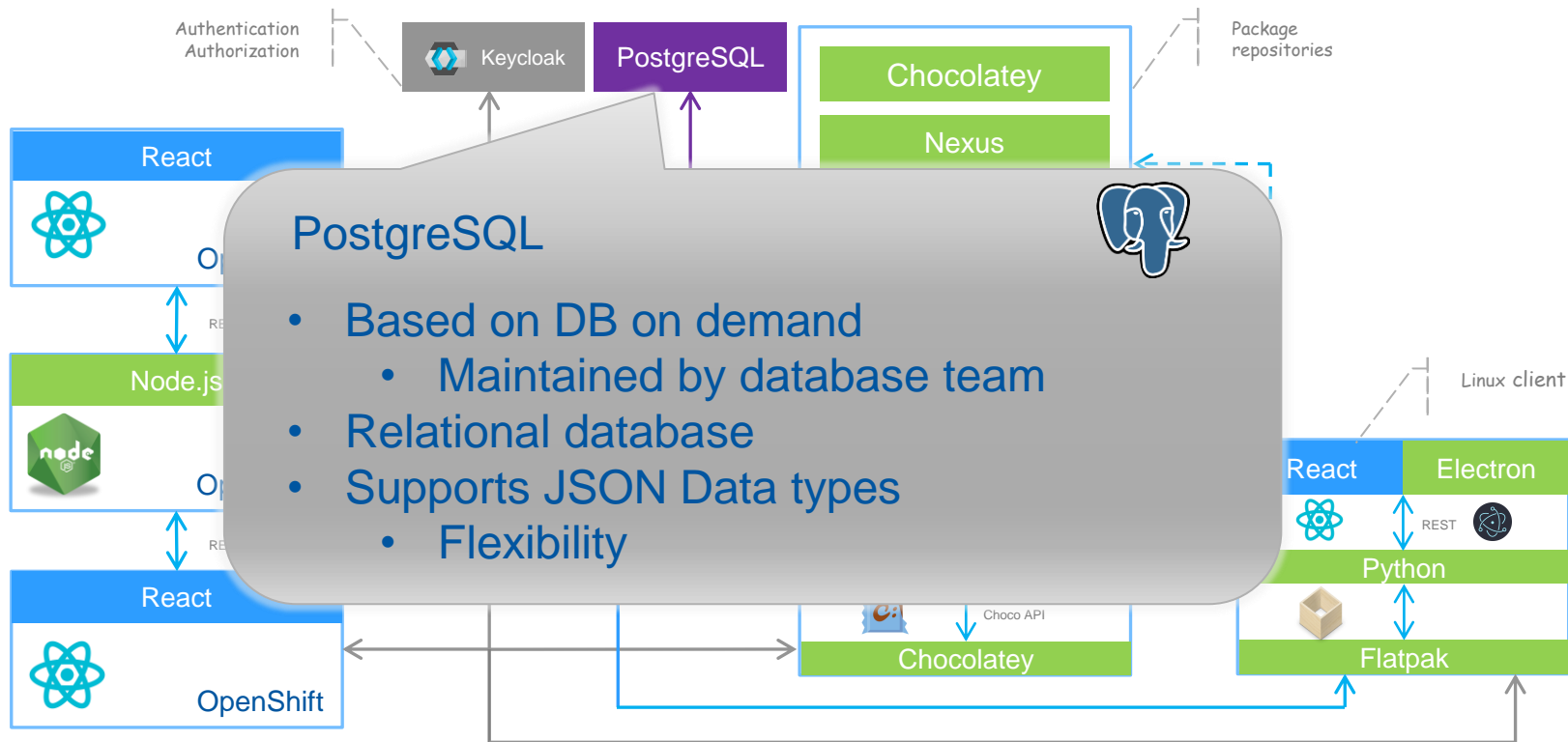
- Web and client
- Application distribution
 - Outside domain
 - Platform specific package manager
- Platform independent front-end
 - Uniform look and feel
- Statistics collection



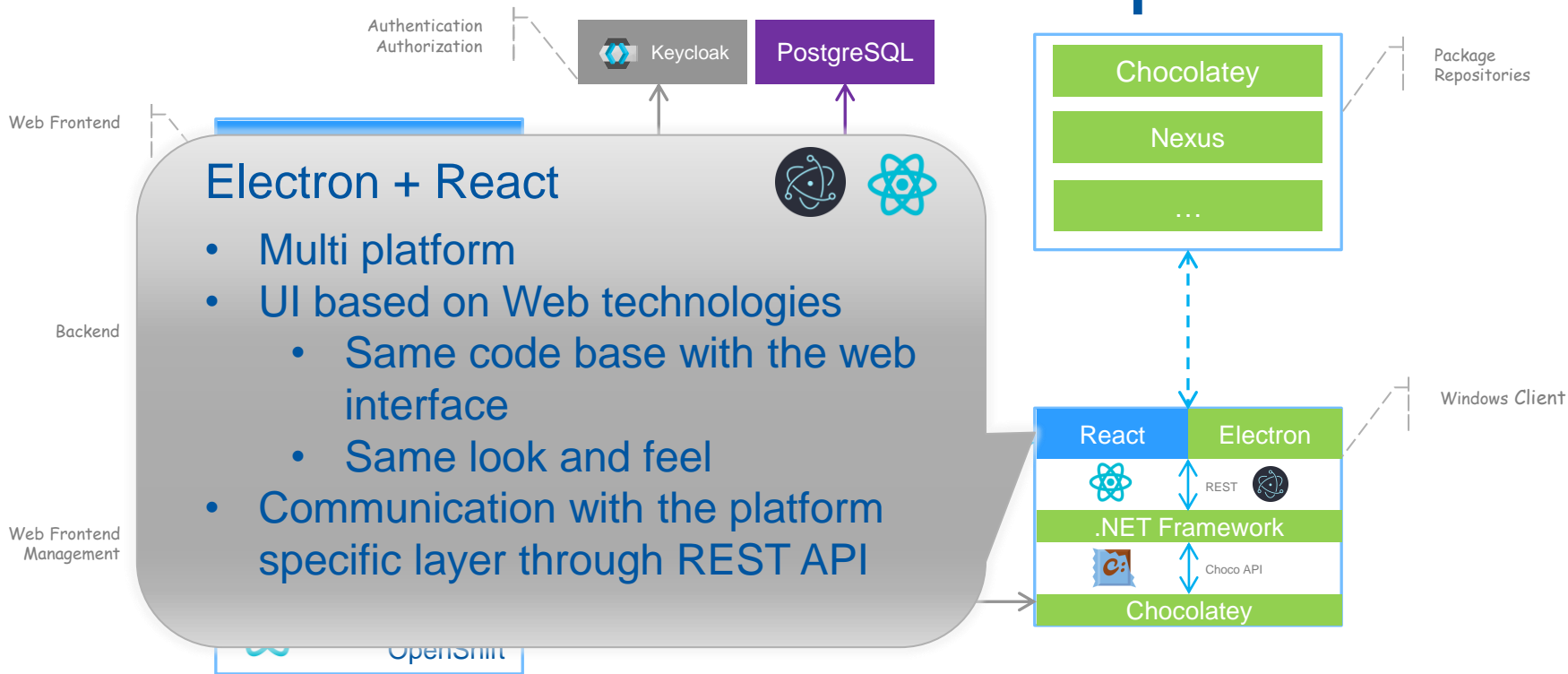
Architecture with Desktop clients



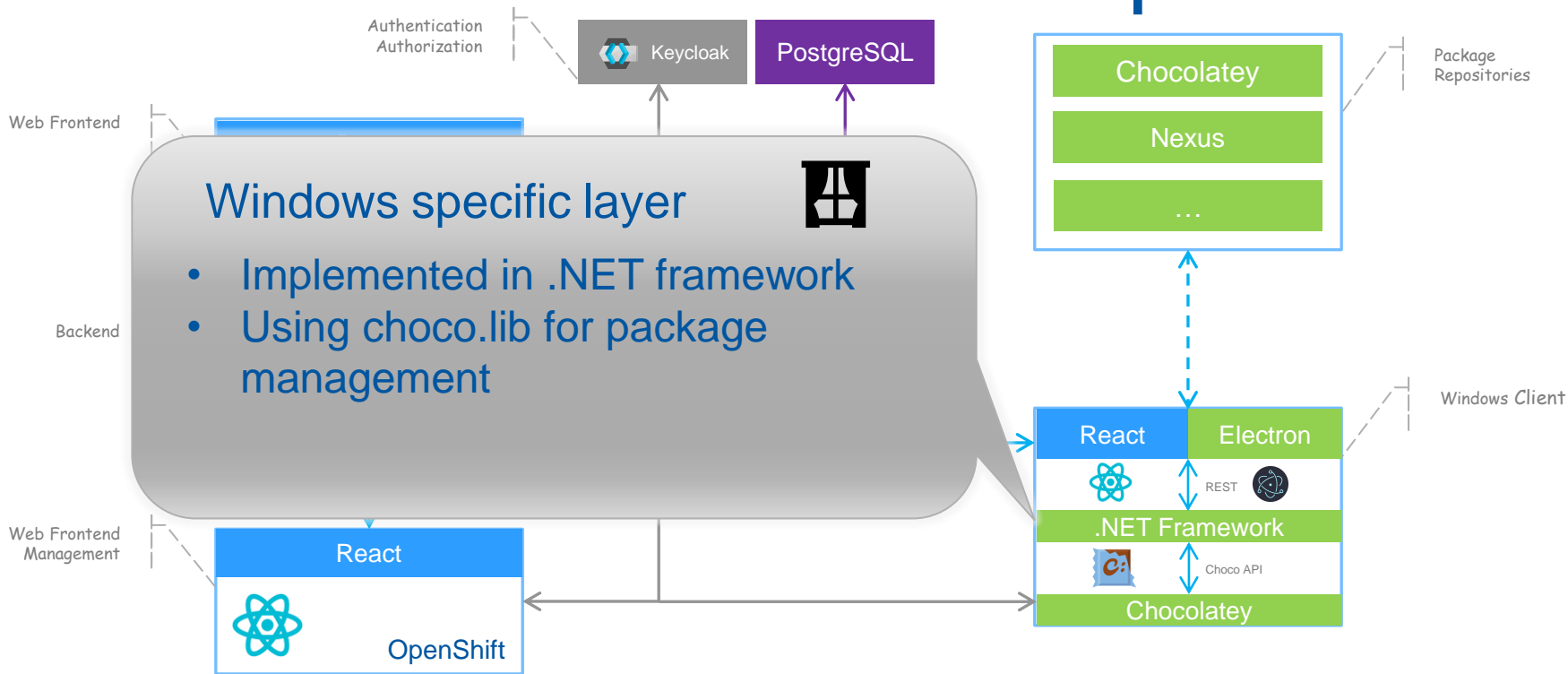
Current Architecture



Architecture with Desktop clients



Architecture with Desktop clients



Architecture with Desktop clients

Authentication
Authorization



PostgreSQL

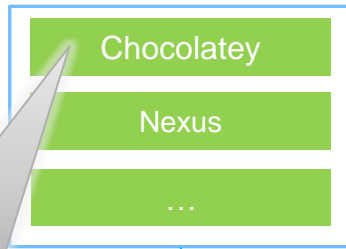
Chocolatey



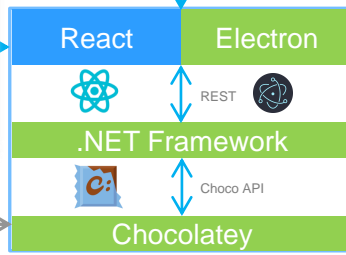
- Package manager for Windows
- Using NuGet packaging and PowerShell
- Widely used on Windows platform
- > 8000 available packages
- Open source project



OpenShift



Package
Repositories



Windows Client

REST

Choco API

Architecture with Desktop clients

Authentication
Authorization



Keycloak

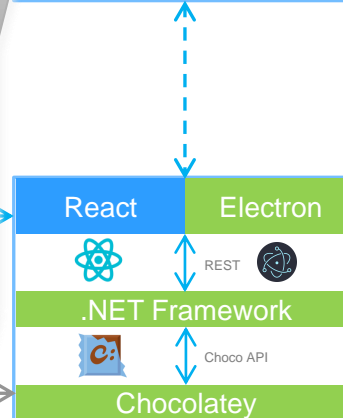
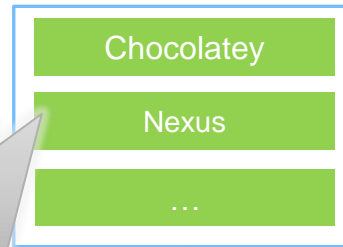
PostgreSQL

Nexus Repository Manager

- Able to host NuGet package repository
 - In-house repository for Chocolatey packages
- Integrated with CERN infrastructure
 - OpenShift image provided as a service
 - CERN SSO integration
 - Persistent storage



OpenShift



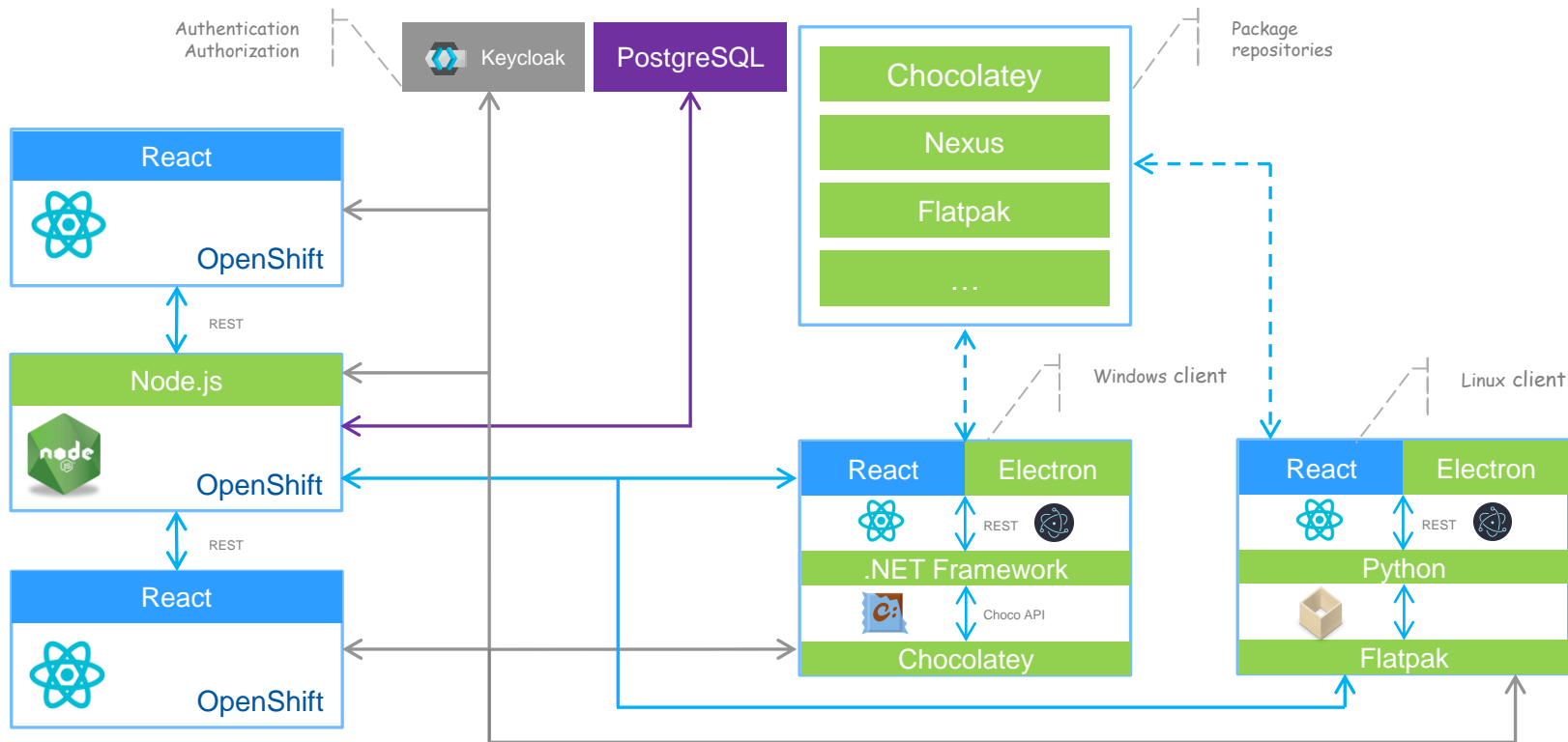
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Current Architecture

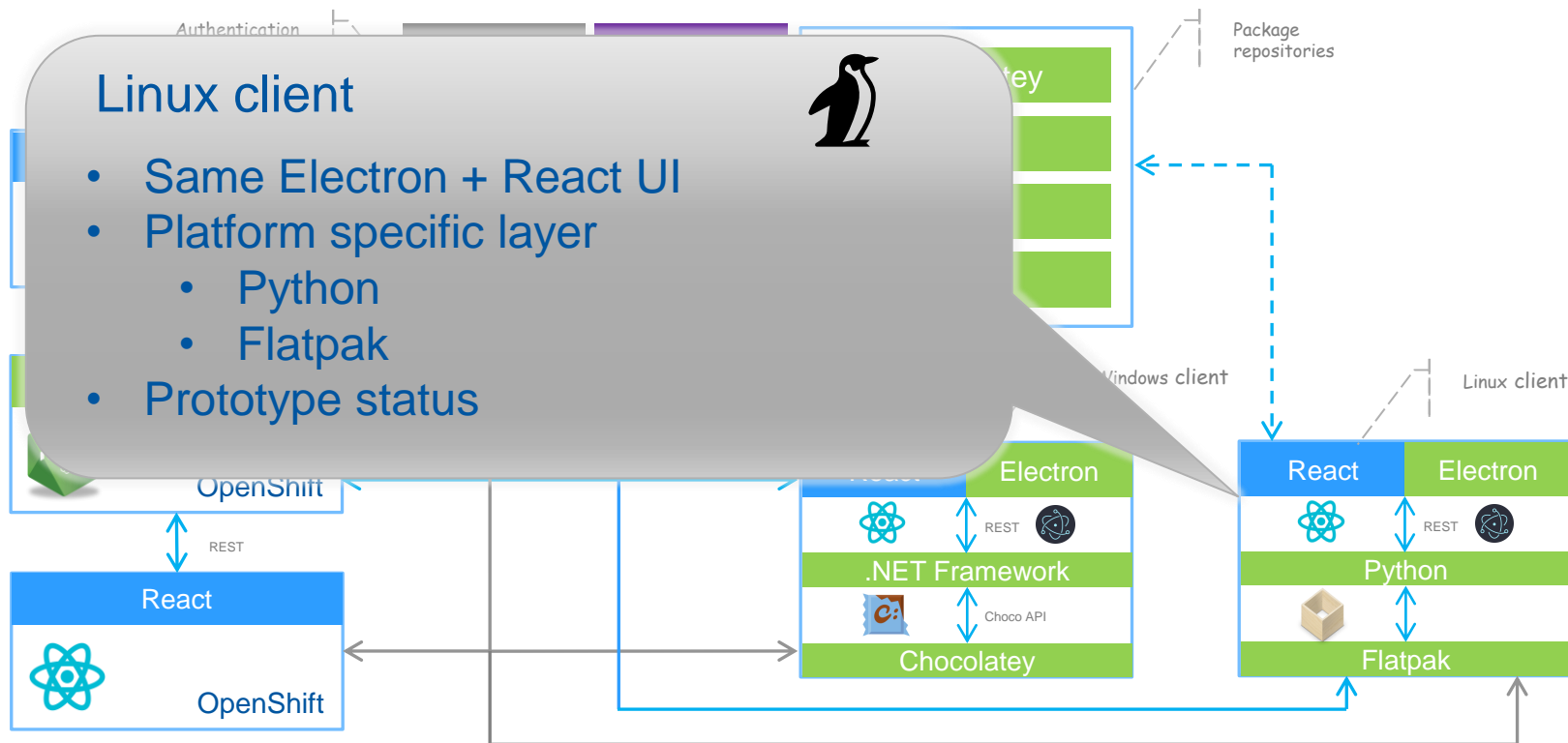


Current Architecture

Linux client



- Same Electron + React UI
- Platform specific layer
 - Python
 - Flatpak
- Prototype status

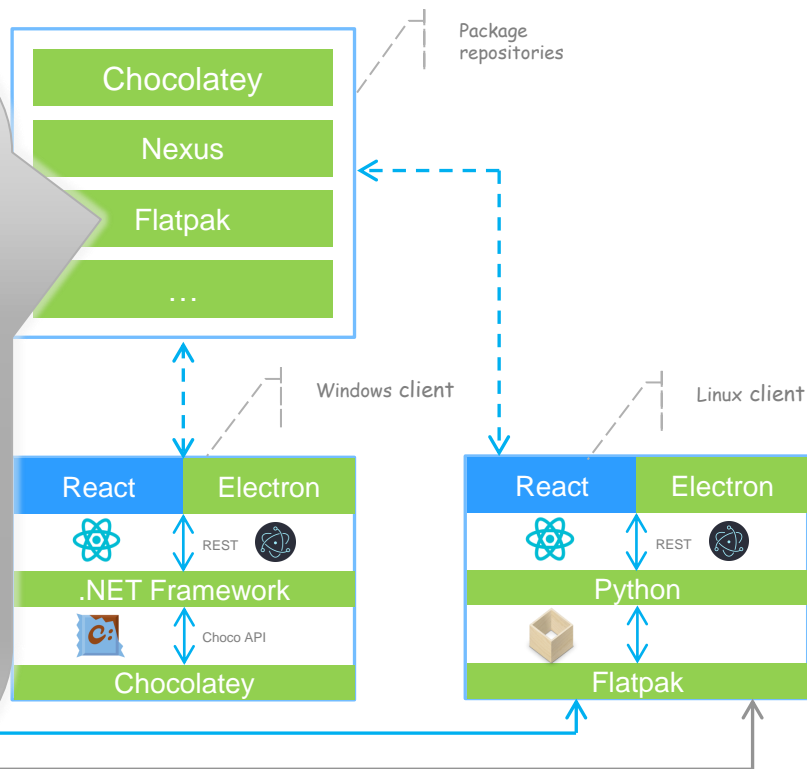


Current Architecture

Flatpak

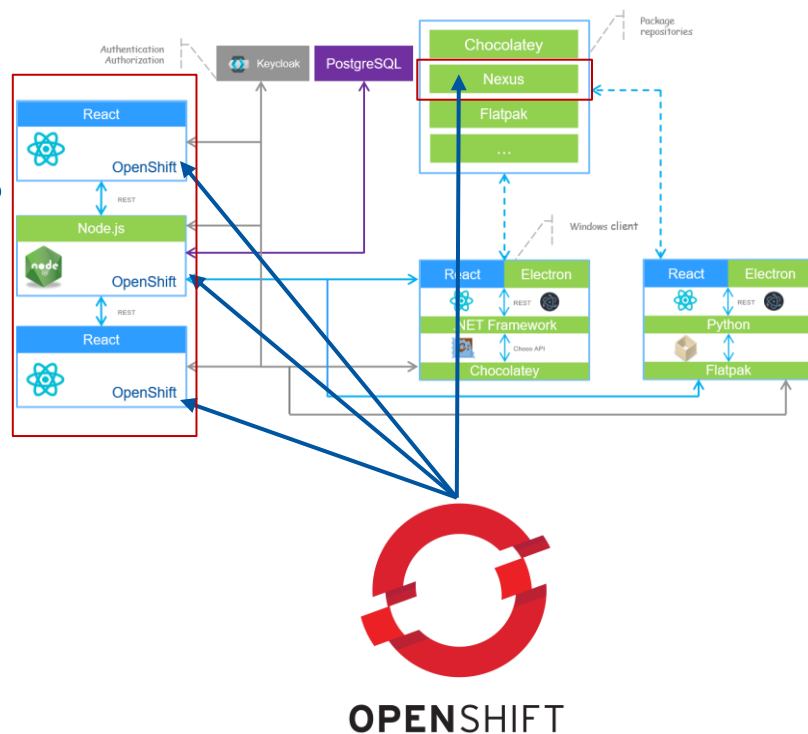


- Package manager for Linux
 - Supports all common distributions
 - Part of freedesktop.org project
- Community packages on Flathub
- Extendible with hosted repositories
- Operates in a sandboxed environment



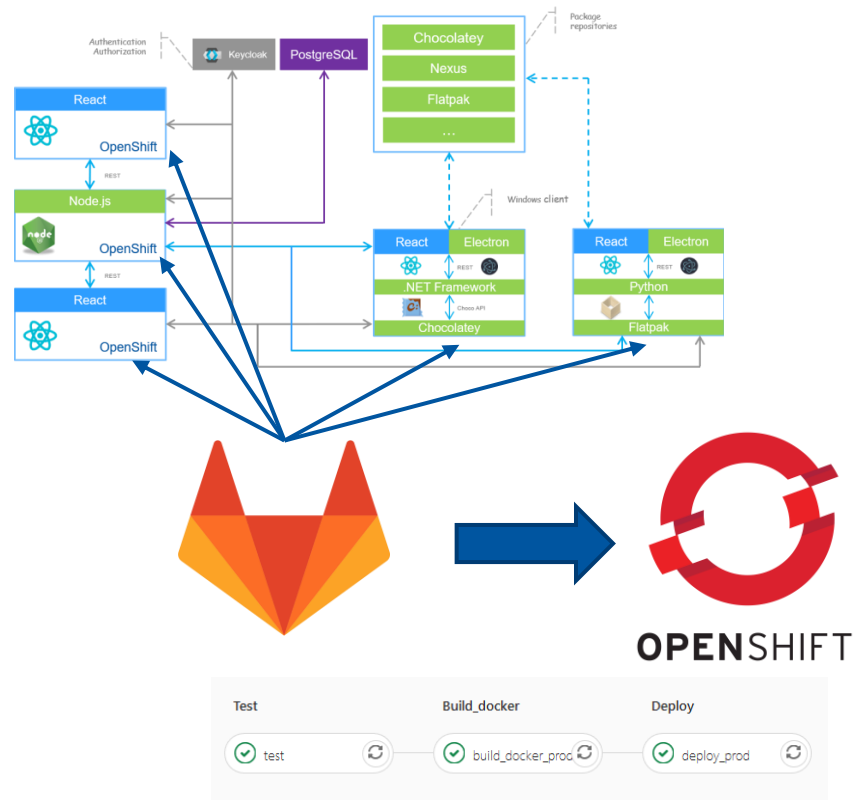
Deployment

- *Dev, QA and Prod* environments
- Containerised deployment
- Frontends, backend and Nexus
 - Deployed to *OpenShift*
 - Seamless, regular and fast updates
 - Triggered by Gitlab CI



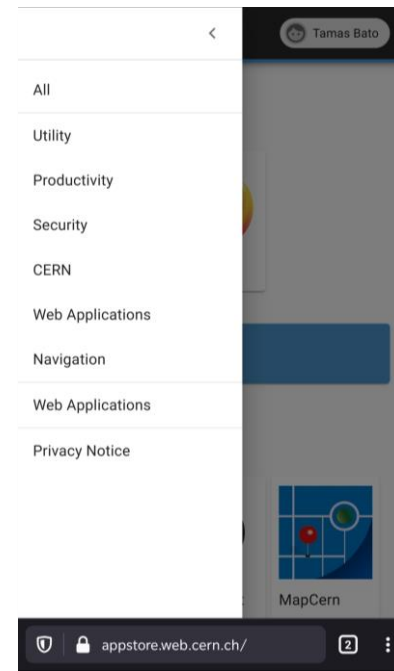
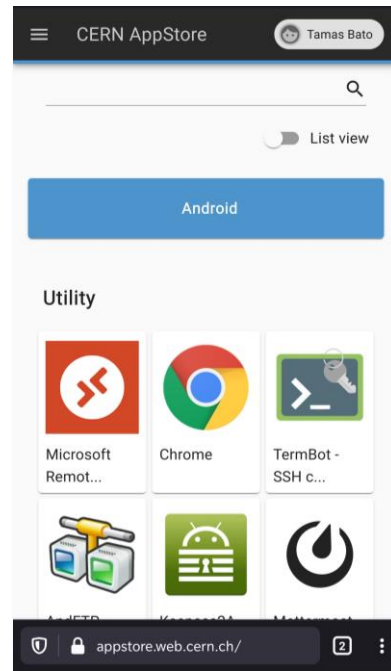
Deployment

- Gitlab CI
 - Used to
 - Test
 - Build
 - Create Docker images
 - Deploy to *OpenShift*
 - Build Windows installer



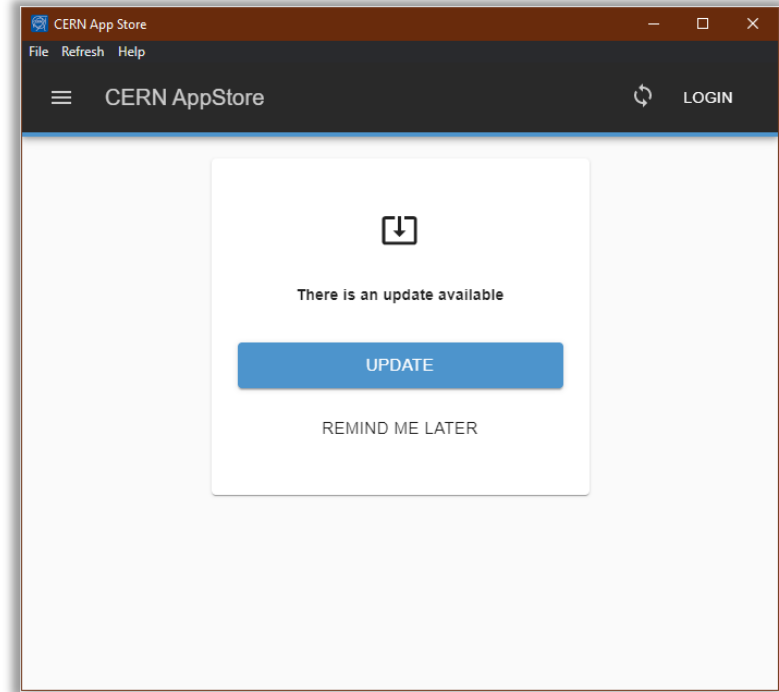
Features

- Provision applications
- Applications can be categorized
- Access to categories can be restricted
 - User roles
 - Provided by Authentication service



Features

- Auto update for clients
 - Downloads
 - Installs
 - Restarts the client



Management interface

The screenshot displays the 'CERN AppStore management hub' interface. At the top, there is a dark header with a back arrow on the left, the title 'CERN AppStore management hub' in the center, and a 'LOGOUT' link on the right. A left-hand sidebar contains a vertical list of menu items: Application, Category, Platform, Role, Repositories, Statistics, System Health, and Settings, each accompanied by a small icon. The main content area is divided into several panels. The first panel, titled 'Apps, Catalogues, Repos', contains three sections: 'Applications' with a '+ Create new app' button, 'Catalogues' with a '+ Create a catalogue' button, and 'Manage repos' with an '+ Add new repo' button. The second panel, titled 'Platforms & Categories', contains three sections: 'Category management' with a '+ Create new category' button, 'Platform management' with a '+ Create new platform' button, and 'Role management' with a '+ Create new role' button. The third panel, titled 'Statistics', contains three sections: 'Applications', 'Platforms', and 'Users'. The fourth panel, titled 'Health', contains one section: 'System health'. The fifth panel, titled 'Client', contains two sections: 'Client settings' and 'System settings'. Each section in the main area is represented by a card with an icon and a title.

Create new application

The screenshot shows the 'Create new application' form in the CERN AppStore management hub. The form is titled 'App form' and includes an 'IMPORT' button. It is divided into several sections: 'Upload Application Icon' (with a 'No icon preview available' message), 'Upload Screenshots' (with a 'No screenshots available' message), 'choco package name' (with a dropdown menu showing options: choco, web, store, installer, flatpak), 'Name', 'Description', 'Platform', 'Categories' (with checkboxes for Utility, Productivity, Security, CERN, Web Applications, Navigation, and Development), 'Repository' (with a dropdown menu and the text 'Please select the repository'), and 'Monitoring usage' (with a note: 'Optional: You can specify the process names which should be monitored on the client. Act on unde Ben's advice [!]').

CERN AppStore management hub

APPLICATIONS CREATE NEW APP CATALOGUES NEW CATALOGUE

LOGOUT

Create new application

App form IMPORT

UPLOAD APPLICATION ICON
No icon preview available

UPLOAD SCREENSHOTS
No screenshots available

choco package name *
The package name can be one word or a valid choco install command.

Installation parameters
Optional installation parameters, which will be passed during installation.

Version

Name *

Description *

Platform *

Categories

Utility Productivity Security CERN Web Applications

Navigation Development

Repository

Repository
Please select the repository

Monitoring usage
Optional: You can specify the process names which should be monitored on the client.
Act on unde Ben's advice [!]

Managing repositories

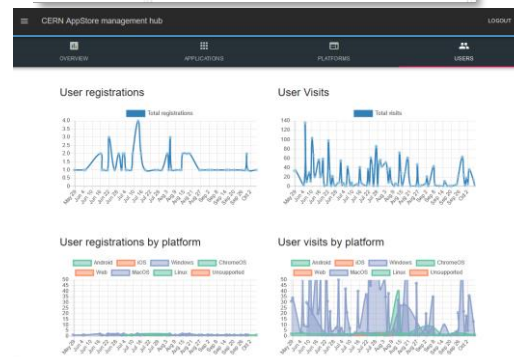
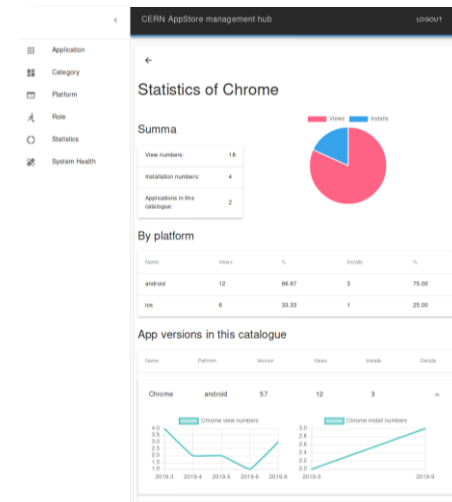
The screenshot displays the 'CERN AppStore management hub' interface. At the top, there is a navigation bar with a hamburger menu icon, the text 'CERN AppStore management hub', and a 'LOGOUT' button. Below this is a dark header with a folder icon and the word 'REPOSITORIES', and a '+ CREATE NEW REPO' button. The main content area features a table with the following columns: Name, URL, Package manager, Edit, and Delete. Two repositories are listed: 'flathub' with a Flatpak package manager, and 'choco-repo' with a Chocolatey package manager. Both URL fields are redacted with black bars. Each repository row has an edit icon (pencil) and a delete icon (trash). At the bottom center, a green notification box displays a checkmark icon, the text 'Repository updated', and a close icon (X).

Name	URL	Package manager	Edit	Delete
flathub	[REDACTED]	Flatpak		
choco-repo	[REDACTED]	Chocolatey		

Repository updated

Usage metrics

- Collecting basic usage data
 - View, installation, usage numbers
 - Registrations
 - Visits
 - Basic client machine data
- Important to understand the usage
 - To improve app offers
 - User has choice
 - Data handled according to GDPR (OC11)



Future plans

- Extending application catalogue
- Disseminate the service
- Complete Linux client
- Release as open source

The project will be open for contributions.
In case you are interested, let us know!

Thank you!

