

nervousnet

An Overview

Measurements over sensor data generated by pervasive & ubiquitous IoT technologies

Network of interconnected software clients – mobile app

Understanding social complexity, collective behavior, and regulating techno-socio-economic systems

A decentralized data analytics platform for privacy-preserving social sensing applications

No centralized control, peer-to-peer interactions, local decision-making

Self-determination of information sharing

Axons – software running on top of platform

Flexible infrastructure-independent
deployment of social experiments

Researcher

Testbed platform for studying
real-world distributed systems

Large-scale spatio-temporal data

Data to validate & test applications

Open-source guiding examples

Developer

Extensible data-driven API
for the development of virtual sensors

Data visualization

Awareness of own social behavior

Virtual Sensors

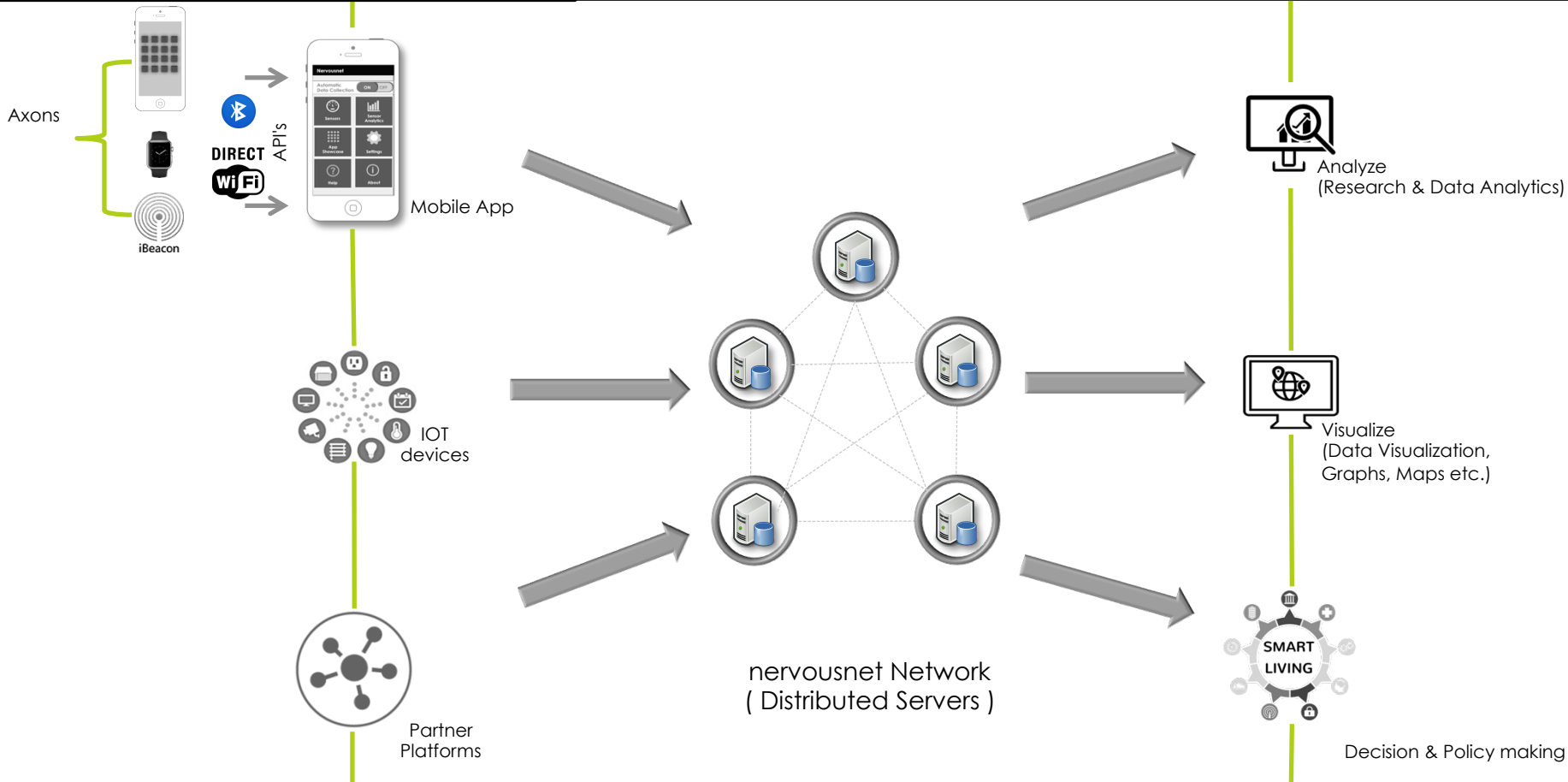
End user

Privacy-preserving access to local sensor data

Analytics on local sensor data

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The Platform

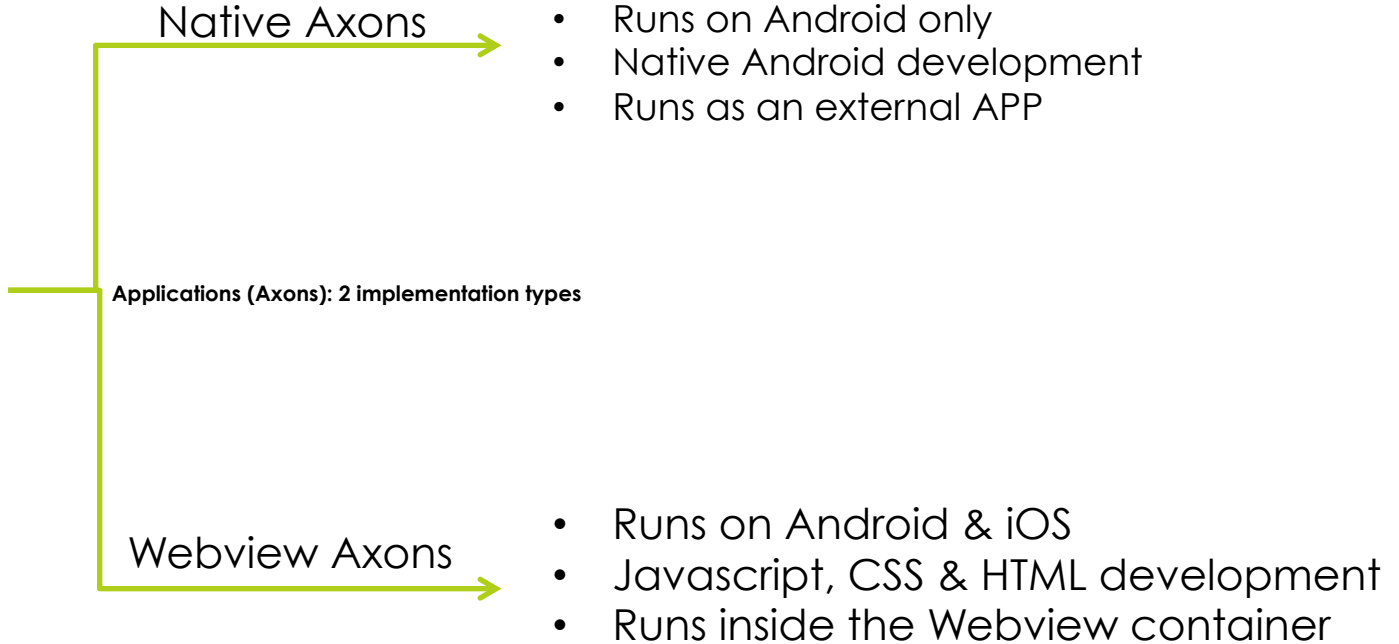


- 1. Mobile App-** Native Mobile Application built for Android and iOS platforms.
 - Allows users to view and share various Sensor related Data
 - Required to be installed for running external apps (Axons) built using **nervousnet PlatformAPI's**.
 - Acts like a connectivity hub for external products like smartwatches, beacons and external sensors that want to share sensor data with the nervousnet platform.
 - Android version uses background **Services** to enable third party apps and native axons to connect and share data with the Nervousnet platform.
 - iOS version uses **WebViews** and allows for external Axons to run inside a WebView container.
- 2. Axons (Native)-** Native Android apps, Smart devices, beacons that can connect to the nervousnet HUB mobile app.
 - Uses the nervousnet Platform API's to receive and share sensor data.
 - Works only in Android devices
 - Uses the Android background services feature.
 - Possibility of using Bluetooth, Wi-Fi Direct to do connect to the nervousnet mobile app.
- 3. Axons -** HTML, JavaScript and CSS applications that run inside WebView containers inside the nervousnet apps.
 - Currently supported on the iOS platform.
 - Android Platform support in the next phase.
- 4. nervousnet Network-** Distributed and Decentralized set of Servers
 - Used to store and collect Data shared by Clients (Mobile & Web), IOT Hardware sensors and devices, partner platforms and more.
 - Individual Servers are called **nervousnet Nodes**.
 - Mobile Clients will have the option of selecting a server from a list.



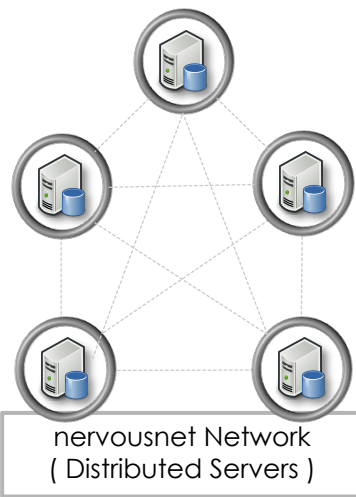
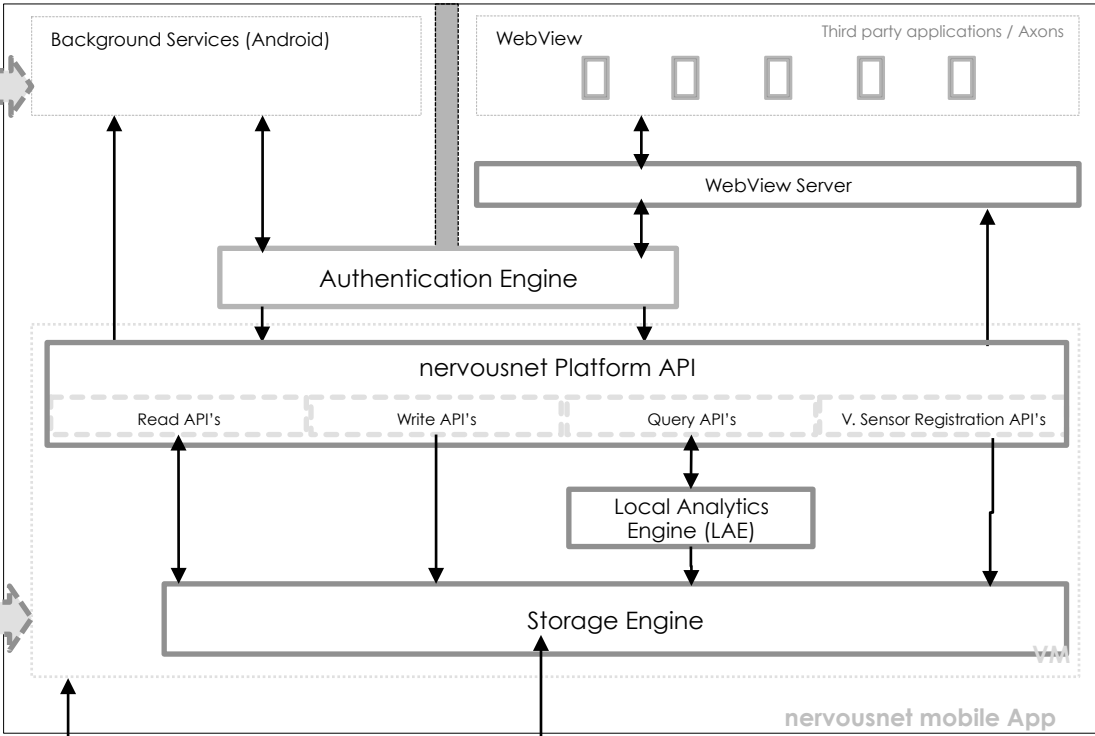
nervousnet platform
(Mobile App)

Application-independent



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Mobile Application Architecture



Life quality indicators: sleeping, driving, health, stress

Activity measurements: walking, stepping, running, sitting, etc.

Environmental measurements: earthquake detection, pedestrian flows

Participatory applications: e-voting, recommender systems, social networks

Security & privacy: encryption, data summarization, anonymity mechanisms

IoT Networking: P2P routing, wireless communication, publish-subscribe systems,

Performance: Efficient storage, data compression, energy management, green networking

Decentralized mechanisms: Incentives/markets, blockchain, virtual currencies, data analytics