Research Activities Management Portal (RAMP)

Your Interface to ScoterLab Data and Research Activities
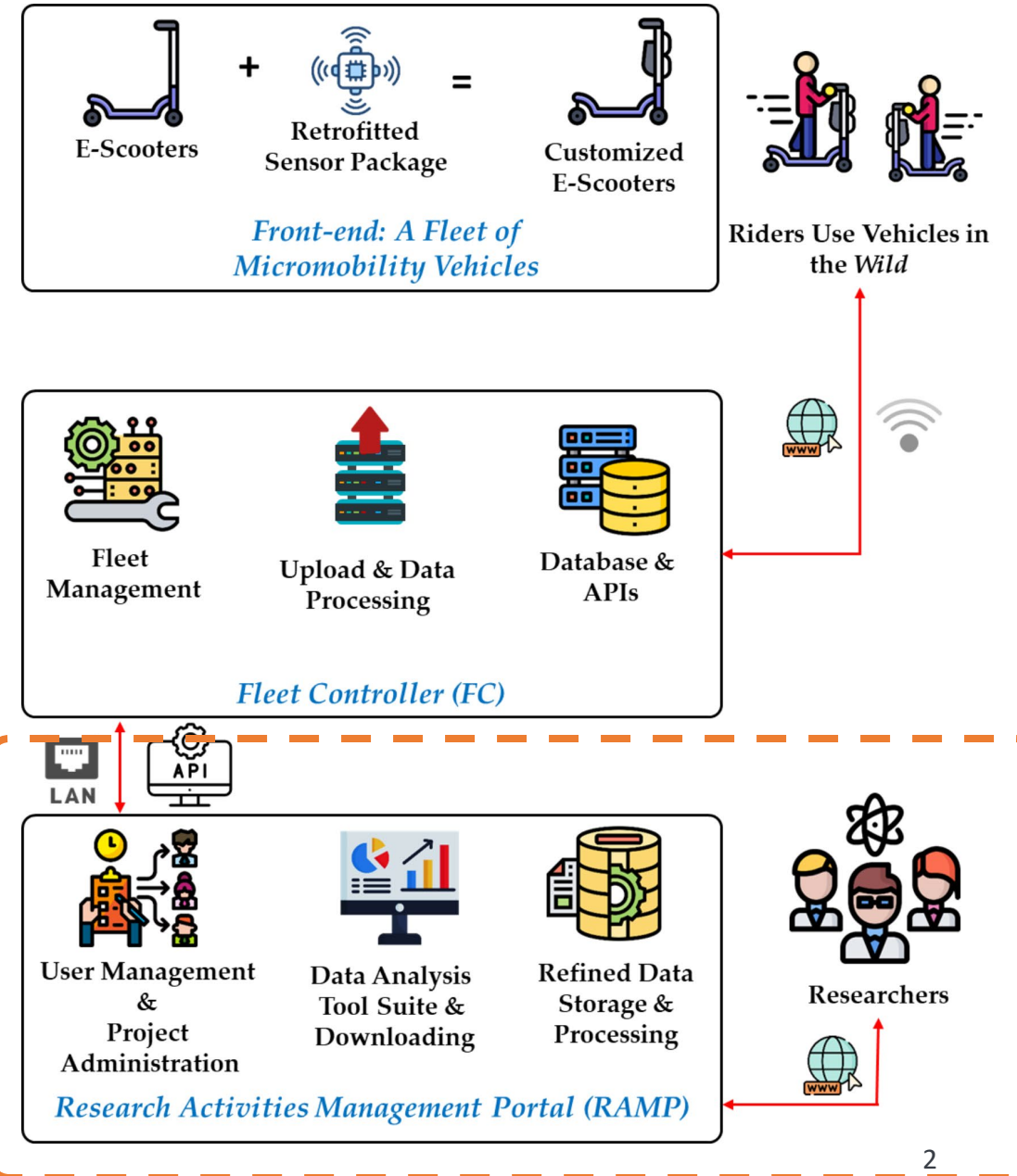
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ScooterLab Workshop 2025
Monday, May 19, 2025 @SP1 San Antonio

ScooterLab   NSF   UTSA CREATING BOLD FUTURES   OU   [matrix] The UTSA AI Consortium for Human Well-Being

ScooterLab

🛴 Front-end: E-scooters & sensing

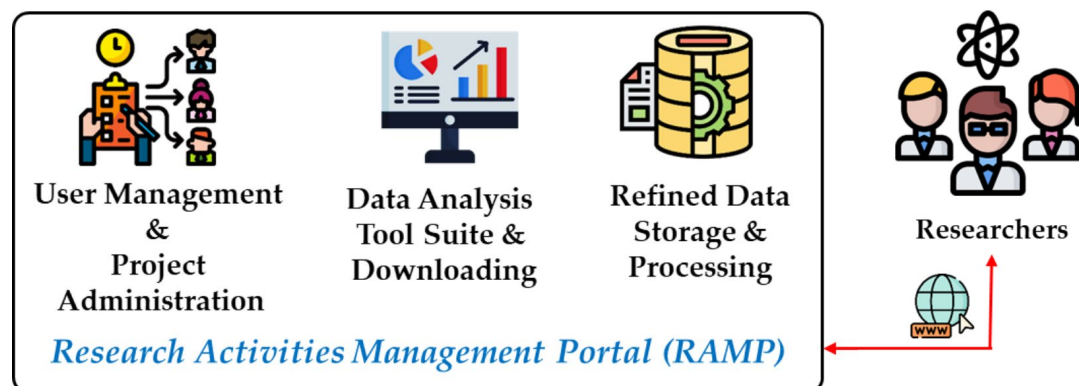🛴 Fleet Controller (FC)

🛴 Research Activities
Management Portal (RAMP)

Overview

- Role in ScooterLab
- What is RAMP
- Core features
- Architecture
- Demonstration
- How to apply for a project

Role in ScooterLab

- Bridge between sensor-rich micromobility testbed and researchers
  Manages projects and produces curated data
- Security, scalability, and support for Researchers

What is RAMP

Research Activities Management Portal (RAMP)

- 🛴 Research Activities Management Portal
- 🛴 Developed under ScooterLab to manage researcher access to data
- 🛴 Web interface to support projects, data access, and analysis

Core features

Administration

- ✓ Project administration
  - ✓ Setup Projects
  - ✓ Project progress
  - ✓ Share data
- ✓ User management
  - ✓ Secure access
  - ✓ Access control

Data Analysis Tool Suite

- ✓ Map tool
- ✓ Stats tool
- ✓ Data downloading
- ✓ Data filtering

Data Storage

- ✓ Data processing
- ✓ Refined data

Architecture

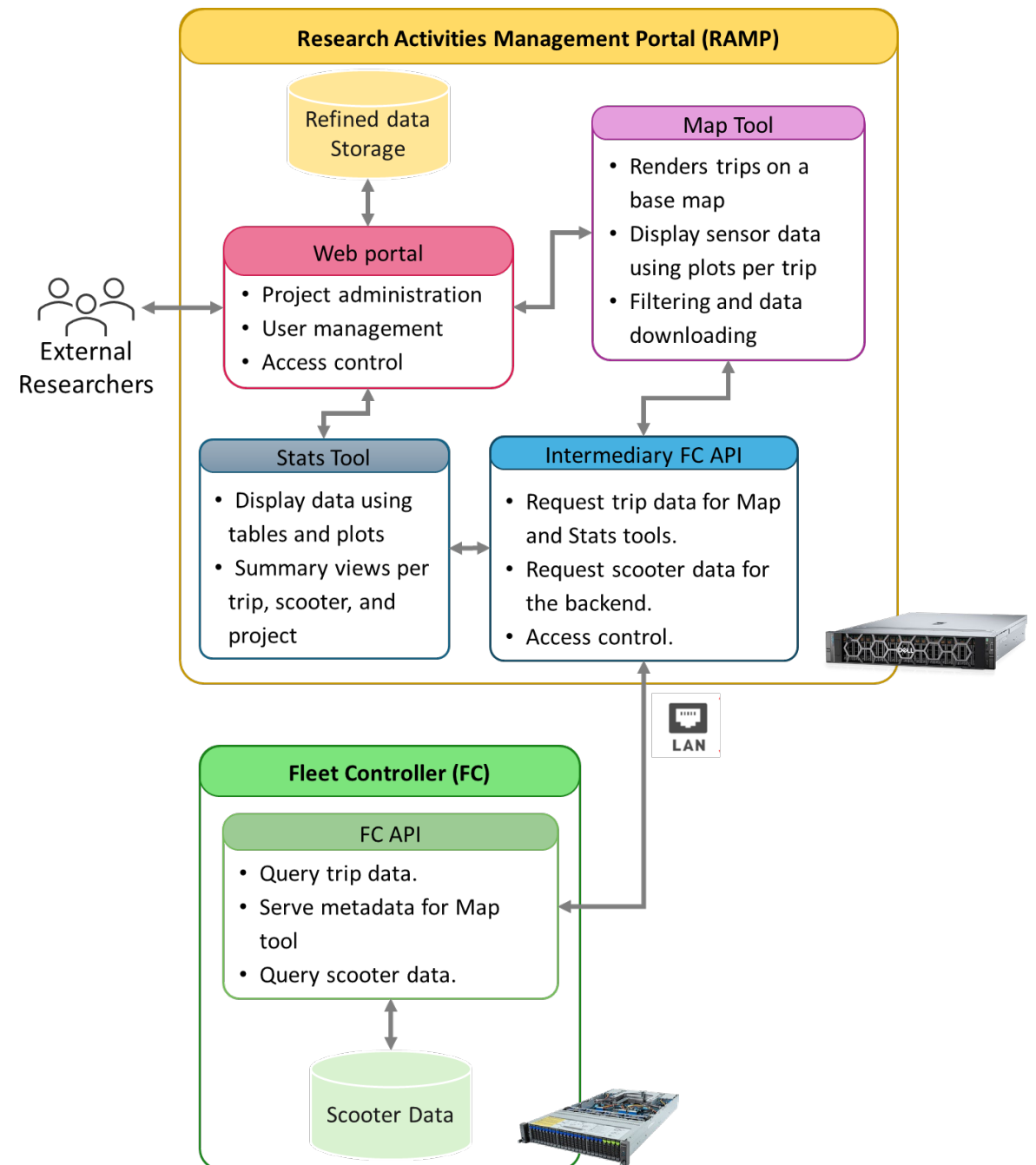🛴 Backend: PHP (Laravel)

🛴 Frontend: JavaScript

Server Specification

🛴 Intel Xeon Platinum 8468 processor x 2

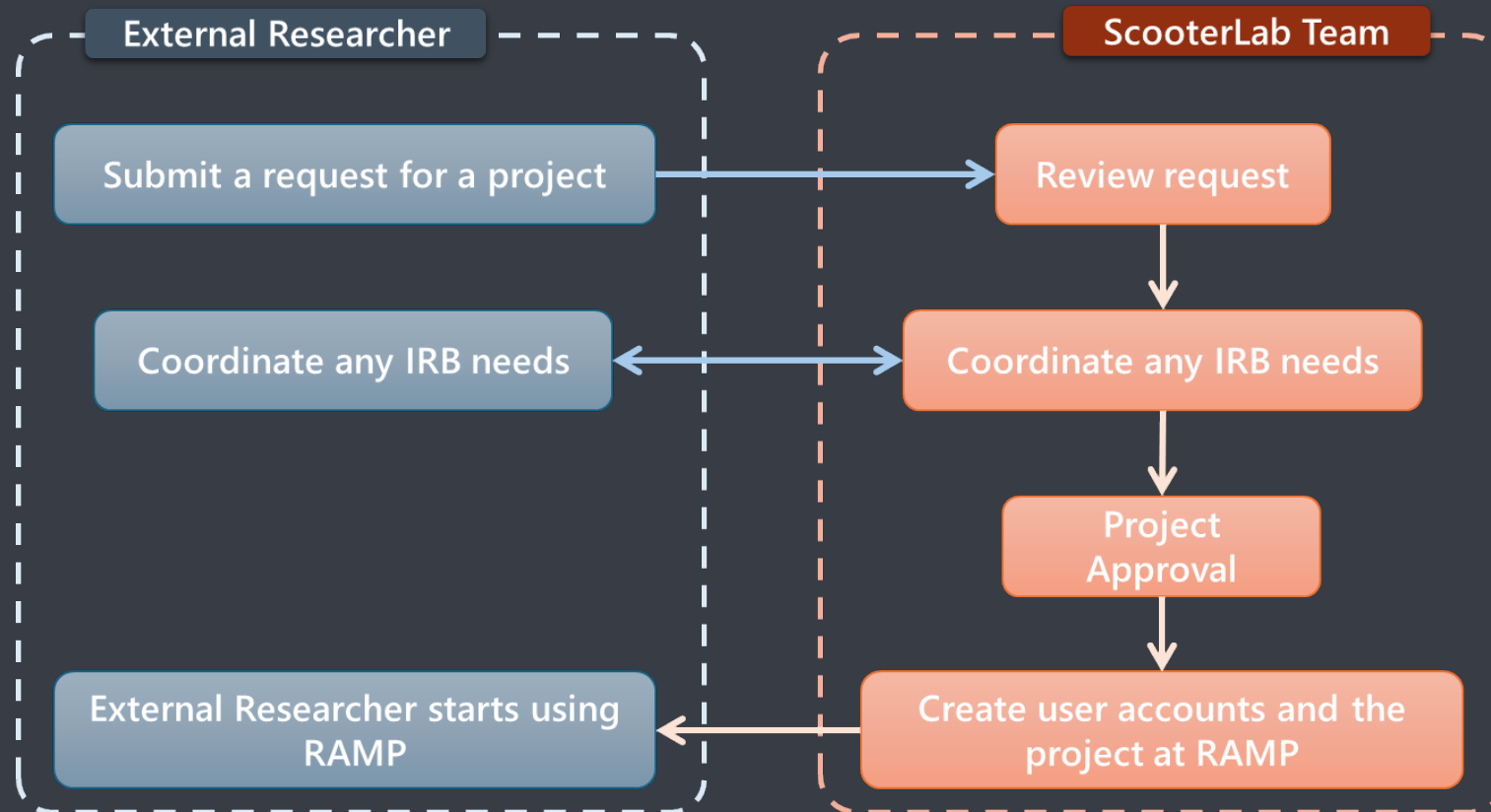🛴 2TB of memory

🛴 Nvidia L40S GPUs 46GB VRAM x4

🛴 15TB of storage

Research Activities Management Portal (RAMP)

Refined data Storage

Map Tool
- Renders trips on a base map
- Display sensor data using plots per trip
- Filtering and data downloading

Web portal
- Project administration
- User management
- Access control

External Researchers

Stats Tool
- Display data using tables and plots
- Summary views per trip, scooter, and project

Intermediary FC API
- Request trip data for Map and Stats tools.
- Request scooter data for the backend.
- Access control.

LAN

Fleet Controller (FC)

FC API
- Query trip data.
- Serve metadata for Map tool
- Query scooter data.

Scooter Data

7

Demonstration

How to submit your request

Visit to https://scooterlab.utsa.edu/forresearchers

External Researcher
- Submit a request for a project
- Coordinate any IRB needs
- External Researcher starts using RAMP

ScooterLab Team
- Review request
- Coordinate any IRB needs
- Project Approval
- Create user accounts and the project at RAMP

How to submit your request – Cont.

- Project Title
- Research Objectives
- Proposed Use of the ScooterLab Platform
- Research Impact
- Timeline
- Technical Requirements
- Project Team

Next

- Heat maps for Map tool
- Extend data download file formats (GeoJSON, Shape files)
- Support for video and audio post processing
- Compute Tool: Allow researchers to leverage our GPUs

Questions?

Apply for a research collaboration

Visit ScooterLab

scooterlab.utsa.edu/forresearchers