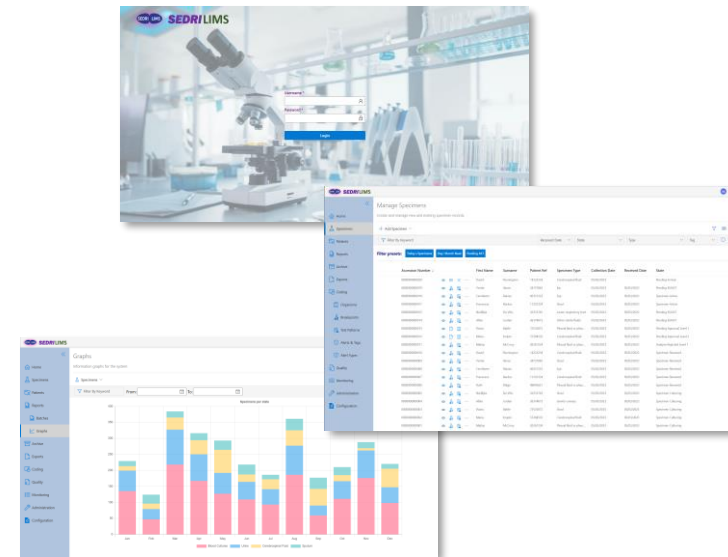




A Microbiology Focused Open-Source LIMS

Arcta Solutions

13/07/2023



Background:

- ***Surveillance is a cornerstone of global AMR containment and control.***
High quality surveillance enables estimation of the extent of the AMR problem, trends over time and the impact of interventions
- AMR surveillance data ***can be used to inform treatment guidelines*** for individual patient infection, which is arguably the most important function of clinical microbiology data

Problem Statement:

- It remains ***challenging for LMIC countries to generate AMR data*** for clinical liaison, analysis of AMR burden or for submission to international AMR surveillance networks
- International initiatives aimed at ***laboratory strengthening often neglect systematic data capture and management***

Solution:

- SEDRIC concluded in 2019 that ***a freely available microbiology LIMS was needed*** to enable labs to manage specimens linked to a patient database, support bench workflow within the lab and easily access and analyse their own data
- This will ***enable laboratories to use data*** at the individual patient level (***to guide treatment***), at an aggregate data level locally within the hospital or ***to report to regional, national or international surveillance networks***

Key Players



SEDRIC

The Surveillance and Epidemiology of
Drug-resistant Infections Consortium



Conceived by

W
wellcome



Funded by

SEDRI LIMS

SEDRI LIMS



Steering Group

Guided by

Developed by



Arcta Solutions

[Team Profiles](#)

Program Objectives



• Phase 1 **Complete**

➤ Duration: 18 months

- ✓ Develop a class-leading open-source microbiology LIMS for mass deployment in LIMC territories
- ✓ Pilot system for 3 months at 5 representative sites (Cambodia, Laos, Malawi, Argentina & Dominica)
- ✓ Provide accompanying web-site with general information, product details, support access, forums and an online demo (available here: www.sedrilm.com)

• Phase 2 **Underway...**

➤ Duration: 36 months

- Extend real-world testing to at least 10 further global pilot sites
- Continue to enhance product per the agreed feature roadmap
- Harden the system for mass deployment
- Publish source code to public repository

Phase I Accomplishments



- Feature-rich microbiology focused LIMS
- Developed using "Agile" methodology with tight user feedback loop and course correction
- Well received by global stakeholders following multiple demos
- Piloted at 5 global sites for 3 months+
- Website & ticketing system for support

Key design goals:

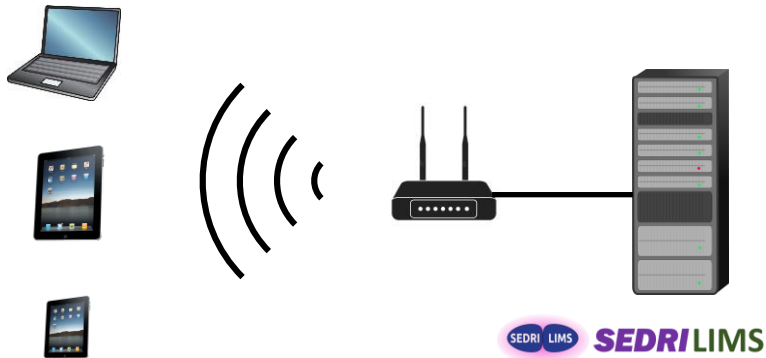
- *Flexibility* Adaptable to user needs and workflows
- *Extensibility* Can evolve to accommodate emerging requirements
- *Ease of use* Intuitive and consistent multi-lingual user interface
- *OS independence* Will support Windows, Linux, OS X, etc.
- *Browser based UI* Access from anywhere on phone, tablet or PC
- *Multiple hosting options* Single workstation, local server or cloud

Deployment Modes

Single Workstation

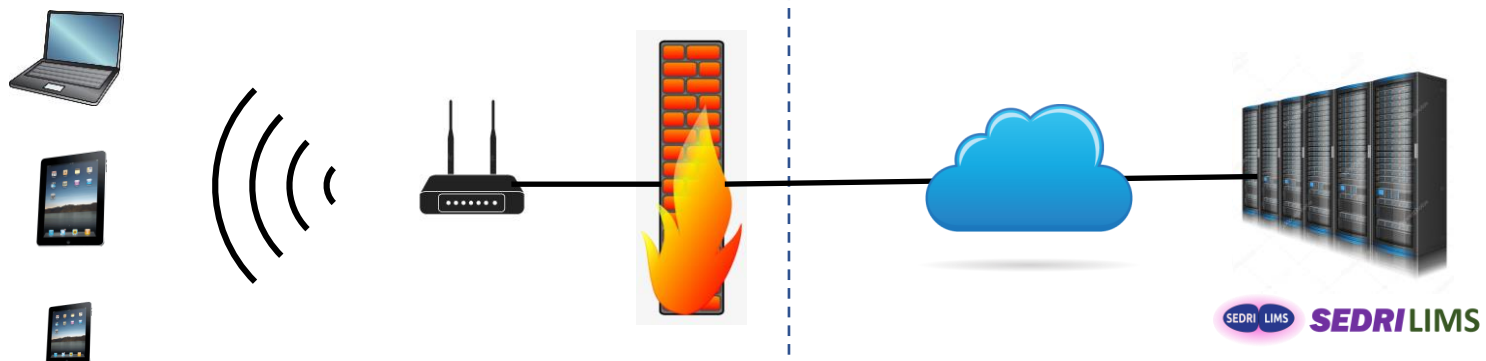


Local Server



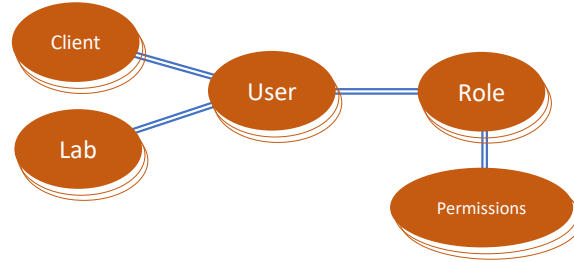
- ✓ Same code
- ✓ Browser UI
- ✓ Any device

Cloud

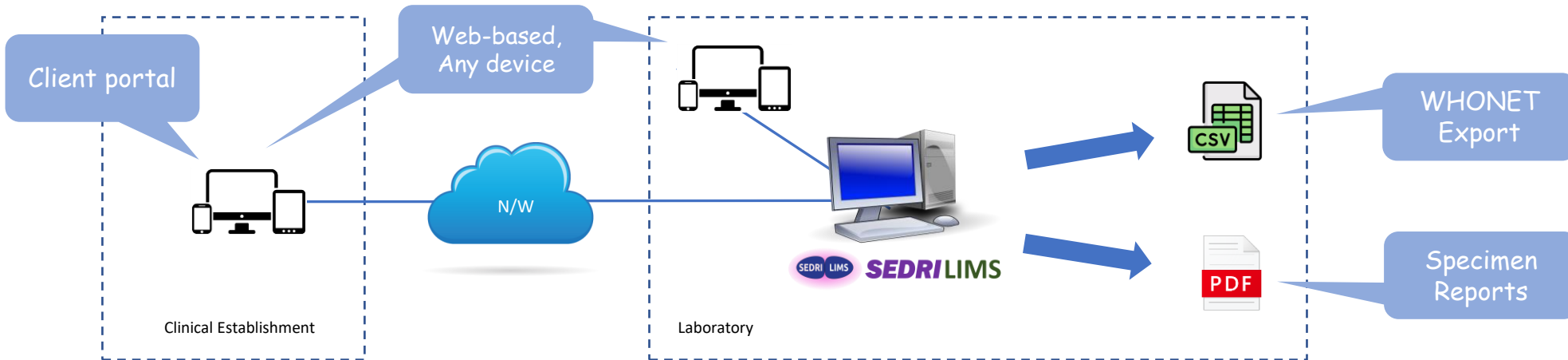
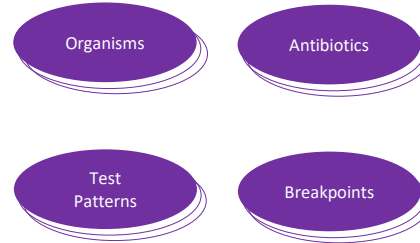


Existing Capabilities

Admin

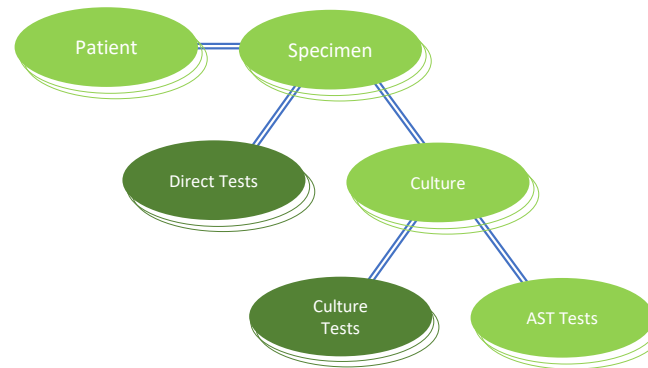


Microbiology Data



- Labels/Barcodes
- Audit log/Diary
- Workflow Enforcement
- Multi-lingual
- Data-Driven

Data Entry



Current Features

Phase II Major Themes



Extended real-world testing:

- Pilot system at 10+ additional sites
- Incorporate feedback

Connectivity:

- Laboratory instruments
- Hospital Information Systems
- Surveillance networks
- Migration from other LIMS/LIS products



Configurability:

- ✓ Expose intrinsic flexibility via the configuration UI
- ✓ Includes workflows, data-entry forms, form-fields, reports, exports and more, permitting a high degree of self-customisation

Phase II Major Themes (Contd.)



Functional Coverage:

- ✓ Quality Control (IQC & EQA) with EUCAST/CLSI import
- ✓ EUCAST/CLSI breakpoints & expert rules import
- **Enhanced reporting** (antibiograms, quality reports, etc.)
- OneHealth support (add veterinary & environmental microbiology)
- **Haematology**, biochemistry & virology (users require a single, pathogen agnostic LIMS for all laboratory informatics)
- Research support (advanced study-based filtering)

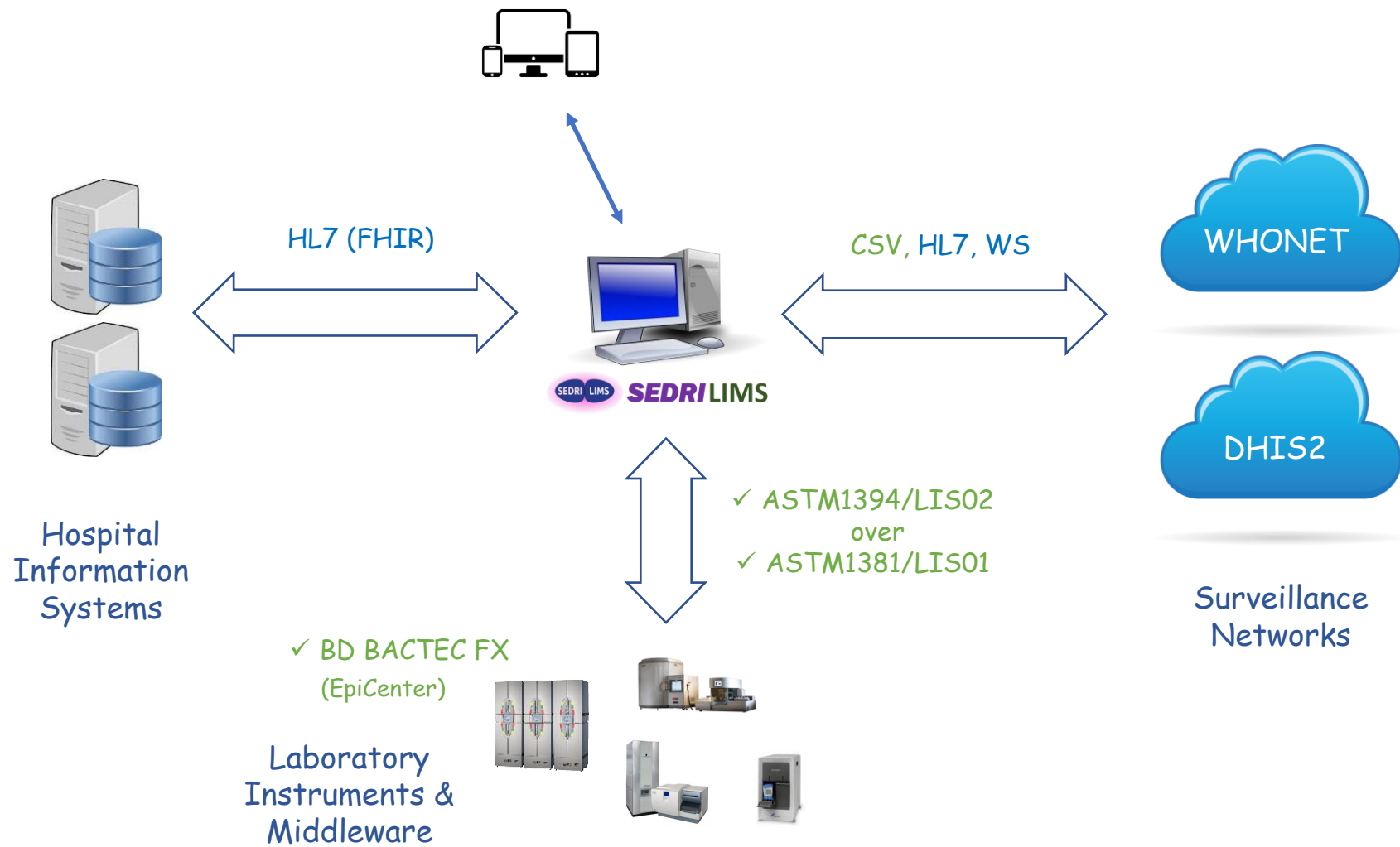
Productisation:

- Packaging
- Backup support
- Installation tools
- Context sensitive help
- Remote diagnostics
- **Documentation**

Open Source:

- Publish source code to a public repository, e.g., GitHub

Enhanced Connectivity

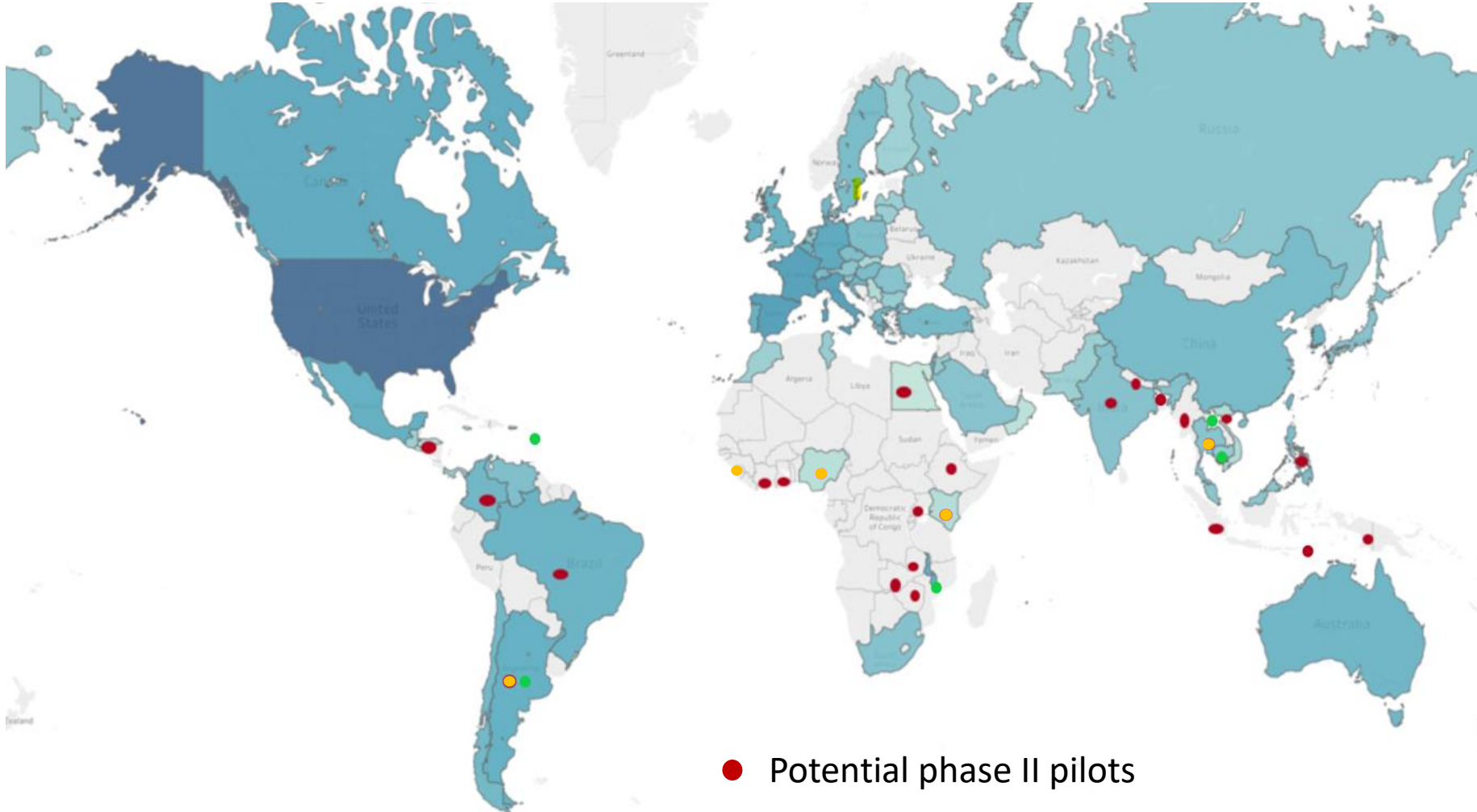


Pilot Territories



● Phase I pilots

● Phase II pilots



Case Study: CEMAR hospital

- Large hospital in Santa Fe province of Argentina serving internal departments and an array of smaller hospitals and health centres
- Continuation of phase one pilot
- Existing flexibility facilitated numerous custom direct tests, a microbiology request form adhering to Argentinian standards and a workflow change
- Excellent engagement resulted in actionable feedback & consequent system enhancements
- Overcame linguistic barriers to successfully gather & meet end user requirements
- Expect to go live, province-wide this year

