



**OPEN
CRVS**

OpenCRVS for the Pacific Region

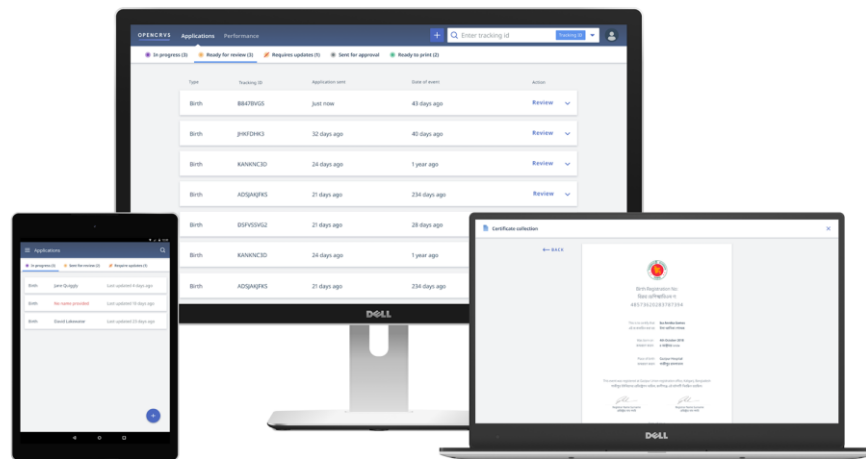
5th June 2020



Agenda

- 01** What is OpenCRVS?
- 02** Current status update
- 03** Product features for the Pacific CRVS context
- 04** Technical approach
- 05** Reference implementations in Bangladesh and Zambia
- 06** Deployment and implementation approaches
- 07** Q&A

OpenCRVS is a digital public good to help achieve universal civil registration and evidence-based decision making in all country contexts.



OpenCRVS product commitments

- No license fees or ties to specific vendors
- Configurable for all country contexts
- Interoperable with other government systems
- Highly accessible to ensure inclusion, even in remote areas
- Safe and secure to keep personal data protected
- Easy to deploy and use in low resource settings
- Enabling new models of civil registration...

OpenCRVS product status

01

We are now open-source!

Check out the public code repository
on Github

github.com/opencrvs

02

Documentation now available!

Explore the capabilities of OpenCRVS

documentation.opencrvs.org

03

Join the community!











Receive regular updates and help co-
create

opencrvs.org

Product Capabilities & Features

How we have responded to common problems observed in
civil registration systems around the world

SPC IT Principle	OpenCRVS coverage	Notes
Legal compliance	✓	Highly configurable forms, processes, roles etc.
Sustainability	✓	Global developer community & shared services
Privacy and security by design	✓	Independently penetration tested
Disaster mitigation	✓	Secure cloud data storage plus regular backups
Person centricity	✓	Records can be linked through UID (BRN or NID)
Interoperability and data sharing	✓	
Appropriateness to country context, particularly HR capacity	✓	Common software development languages and frameworks used throughout
Easy access to data	✓	
Country data ownership	✓	Public cloud storage includes local backup
Flexibility	✓	Modular architecture and CI/CD
Knowledge transfer to countries	✓	Fully documented product

SPC IT Requirement	OpenCRVS coverage	Notes
Capacity to register all vital events		Current scope: birth and death registration
Include all CRVS milestones		VS functions remain responsibility of statistical systems (via data export)
Activity logging capabilities		
Person-based		
Roles-based user permissions		
Duplicate record detection		
Data importing and exporting		
Querying and record searches		
Correction and amendment of records		
Storage and Back up		

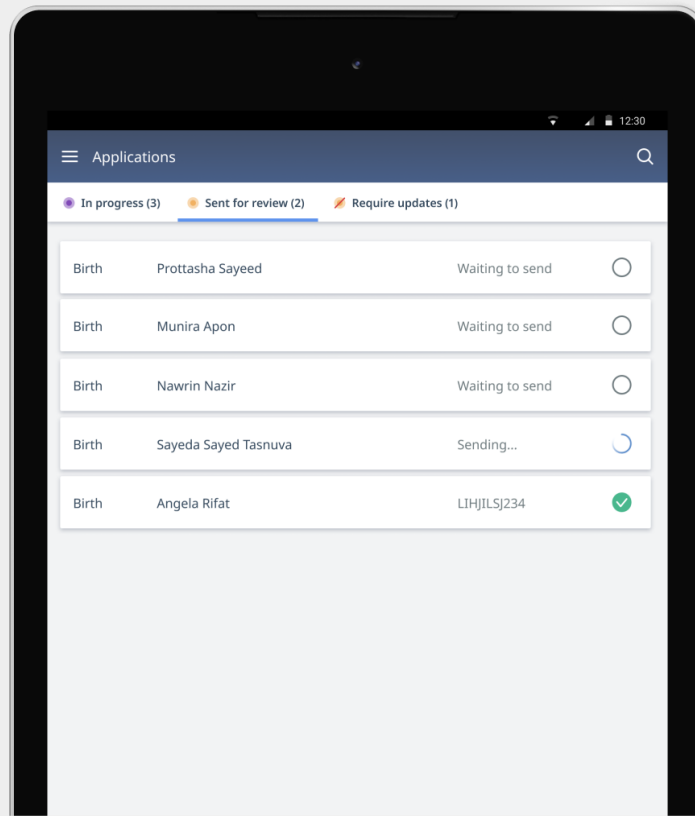
Offline/low connectivity working

Problem

Registration agents are unable to conduct their work because there is little or no connectivity.

Solution

OpenCRVS works offline and with low connectivity, and tells users what is going on.



Problem

Solution

[illegible]

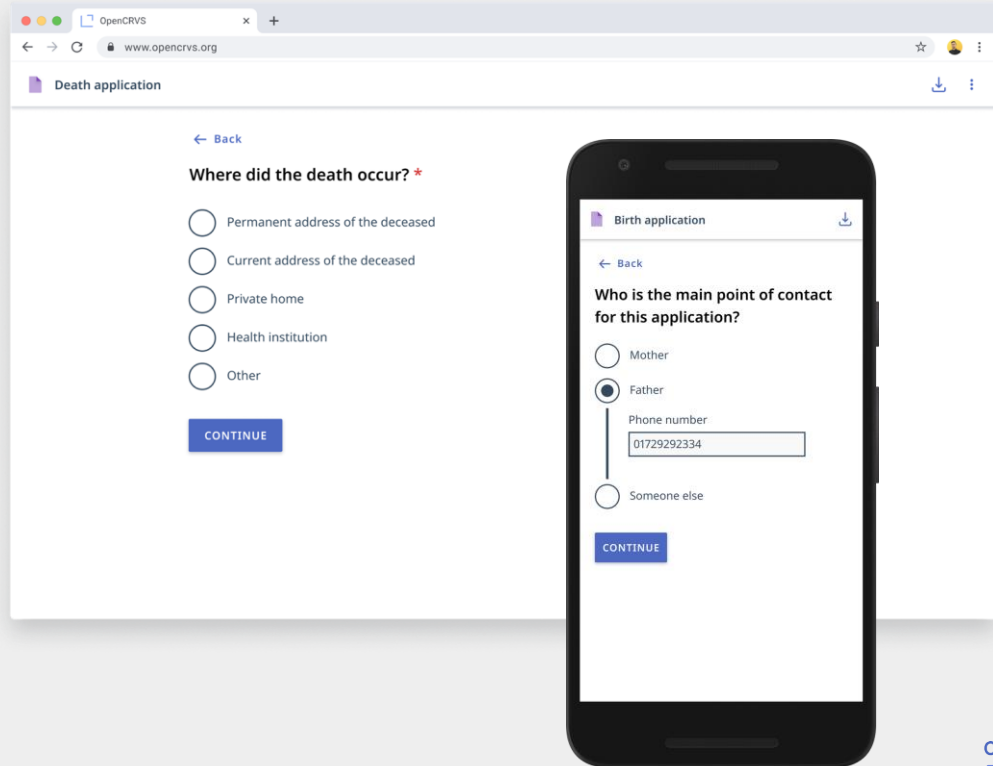
Usability of form

Problem

Long forms in a digital format are not easy to complete

Solution

Question led forms guide the end-user through the process while keeping form entry simple and easy



The image displays two screenshots of the OpenCRVS application interface. The background screenshot is a web browser view of the 'Death application' form. It features a 'Back' link, a question 'Where did the death occur? *', and five radio button options: 'Permanent address of the deceased', 'Current address of the deceased', 'Private home', 'Health institution', and 'Other'. A blue 'CONTINUE' button is at the bottom. The foreground screenshot is a mobile phone view of the 'Birth application' form. It also has a 'Back' link, a question 'Who is the main point of contact for this application?', and three radio button options: 'Mother', 'Father', and 'Someone else'. The 'Father' option is selected, and a 'Phone number' field with the value '01729292334' is visible. A blue 'CONTINUE' button is at the bottom.

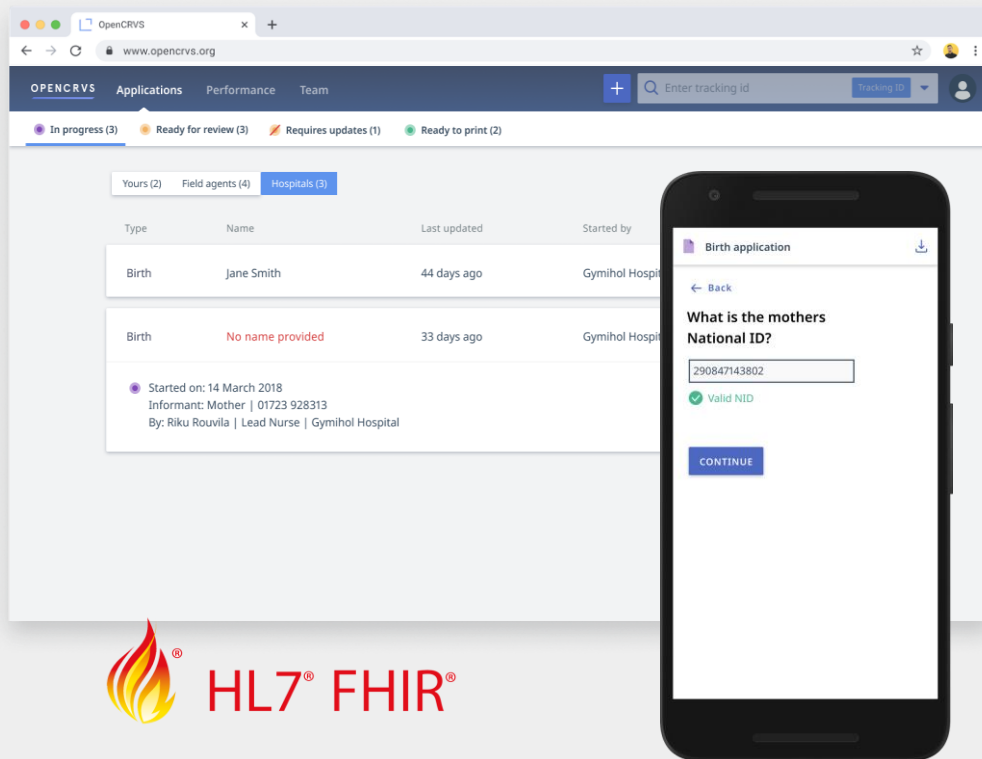
Works with other systems incl. Health and National ID

Problem

Systems operate in silos and do not share data

Solution

Use of open standards that makes interoperability with other e-government systems easy



Real-time operational monitoring

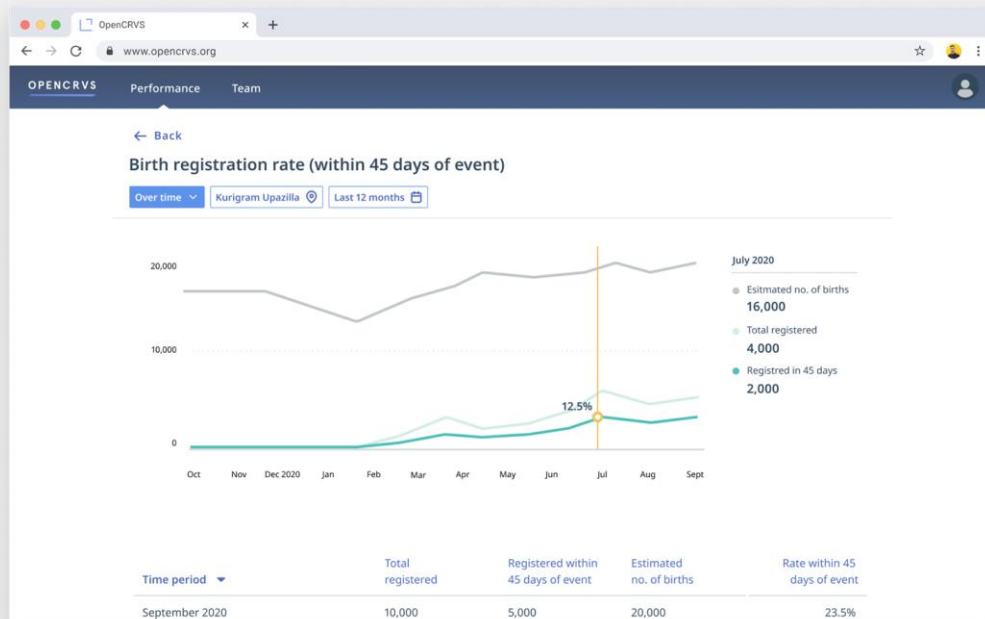
Problem

Those responsible for civil registration do not have an accurate view of service levels and performance.

Solution

Real-time data visualisations. Headline registration rates

Operational data that supports performance management and targeted improvements



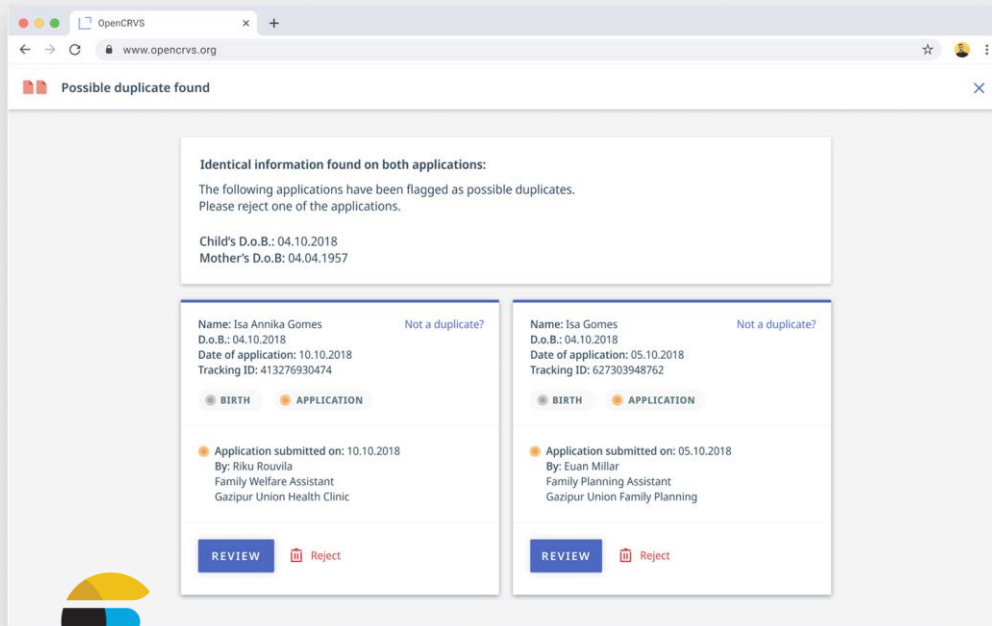
Real-time deduplication

Problem

Registrars have no way of knowing if an application has already been processed.

Solution

Potential duplicate applications and records are matched using a smart algorithm. 500 de-duplication queries per second



elasticsearch

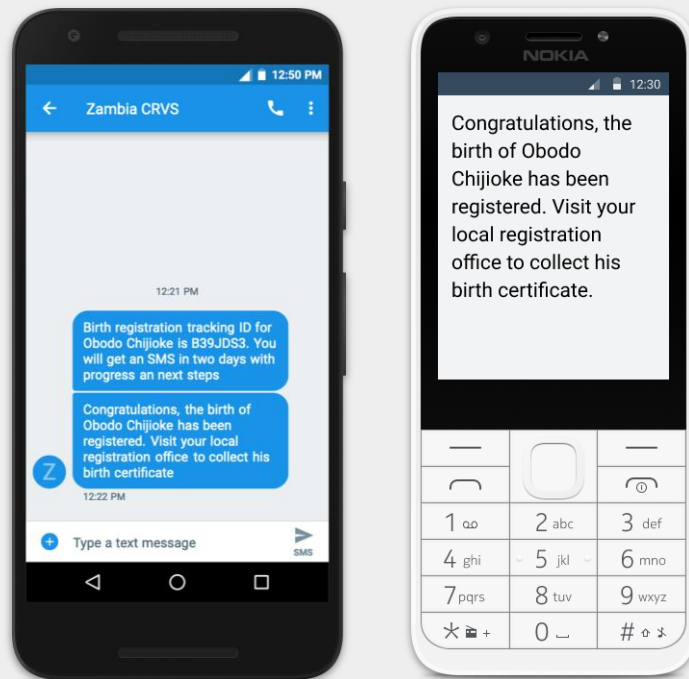
Feedback on application status

Problem

Informants don't know what the status of their application is and after several unnecessary trips to registration offices, often give up on the process

Solution

Status updates are provided to Informants to set clear service delivery expectations



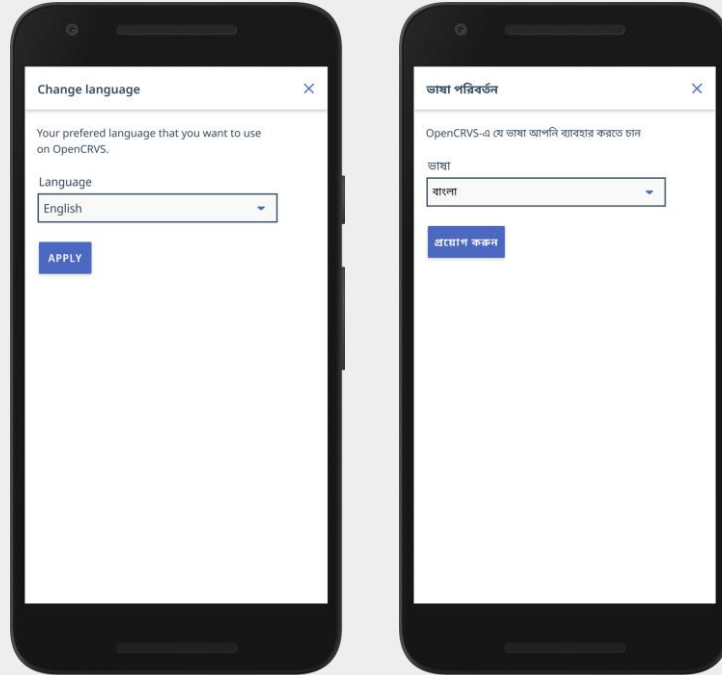
Language preference

Problem

System users are unfamiliar with the default language and as a result, cannot follow the process and make data entry errors.

Solution

OpenCRVS supports multiple languages, which can be selected by the user.



Record correction

Problem

Correcting a record is more difficult than starting a new application. Data is inaccurate and duplicate records are created.

Solution

Simple record correction process that enables efficient review and processing of requests + keeps track of any changes made.

What is your reason for changing the child's date of birth?

Select a reason for the change and add any comments to support the reason given.

- ☐ Myself or an agent made a mistake (Clerical error)
- ☐ Applicant provided incorrect information (Material error)
- ☐ Applicant did not provide this information (Material omission)
- ☐ Requested to do so by the court (Judicial order)

Any additional comments?

Audit

Problem

People take advantage of the civil registration system and fraudulent activities are difficult to identify and stop

Solution

Audit capabilities that log and trace both user and record interactions

OPENCrvS

SystemRecords

← Back

Print

Jonathan Smith · BSNDNFK

Date of birth

December 10, 2016

Place of birth

Pembury Hospital, Kent

Applicant

Father · 07708098450

BRN

201992348243902825

Action	Date	By	User type	Office
<div></div> Started	May 2, 2020 · 2:30 PM	<div><div></div>Jane Phillips</div>	Field agent	Bhurungamari Union Parishad
<div></div> Sent incomplete	May 2, 2020 · 2:44 PM	<div><div></div>Jane Phillips</div>	Field agent	Bhurungamari Union Parishad
<div></div> Application updated	May 5, 2020 · 11:54 AM	<div><div></div>Judith Murphy</div>	Reg Agent	Bhurungamari Union Parishad
<div></div> Sent for approval	May 5, 2020 · 11:54 AM	<div><div></div>Judith Murphy</div>	Reg Agent	Bhurungamari Union Parishad
<div></div> Registered	May 6, 2020 · 10:23 AM	<div><div></div>May Quiggley</div>	Registrar	Bhurungamari Union Parishad

OpenCRVS technical approach

How we are using proven technologies, designed with users to respond to their specific needs

Data layer

Scalable FHIR standard
database server
HL7 FHIR



Search and
de-duplication
Elasticsearch



Server health
monitoring

Sentry, netData, pingdom



Back-end and
middleware layer

Enterprise service bus
standardised interoperability



HL7 FHIR, OpenHIM

Business functionality as
microservices

Node.js



Fast and secure
API gateway

oAUTH, GraphQL



Private and public
cloud with automatic
provisioning

Docker Swarm, Ansible



Front-end
applications

Desktop and
mobile application

React, PWA, JWT



Implications of the technical architecture for countries

- Countries with legacy systems can still take advantage of OpenCRVS's advance technology and features.
- Highest possible security and data protection standards.
- Options to reduce the total cost of ownership through shared infrastructure, SaaS models.
- Changes to requirements are quick and easy to make.
- User experience is of a super-fast system that is always available.
- Local resources are able to concentrate on the business of civil registration, not IT maintenance and support.
- Civil registration data is securely stored and free from the risks due to natural disasters.

OpenCRVS implementations

How we are testing and continuously improving with users to respond to their specific needs.

OpenCRVS in Bangladesh

- Pilot in rural and peri-urban locations started in Jan '20 to develop a “future” model for birth and death registration in Bangladesh that will drastically increase registration within 45 days. This includes:
- Community based applications completed by Community Health Assistants
- Notifications received from DHIS2 health system
- Continuous improvement approach implemented - test, learn, iterate



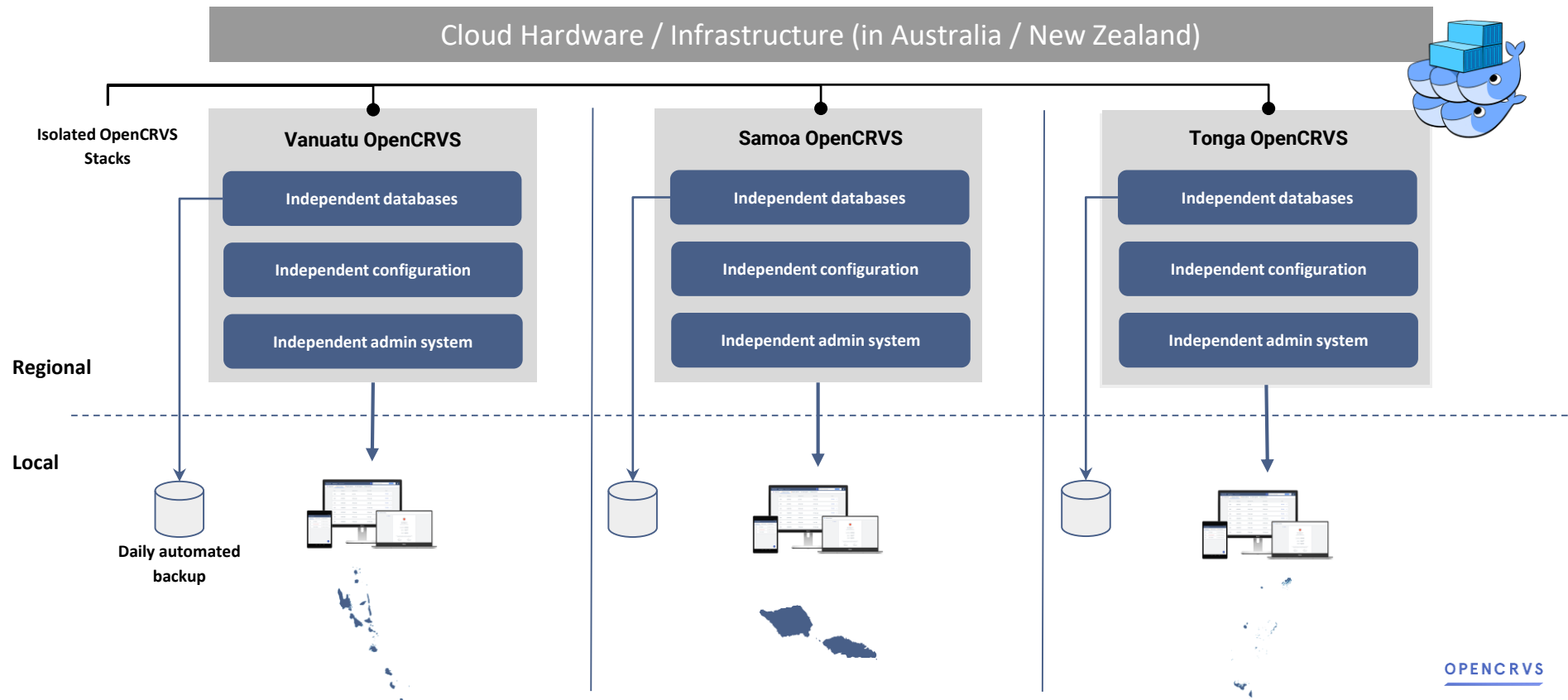
OpenCRVS in Zambia

- OpenCRVS was configured for the Zambian context in 3 months for demonstration at COM5
- Service delivery mechanisms include:
 - Community based applications using health assistants & mobile phone operators
 - Health-based applications
 - Registration authority validation and issuance of certificates

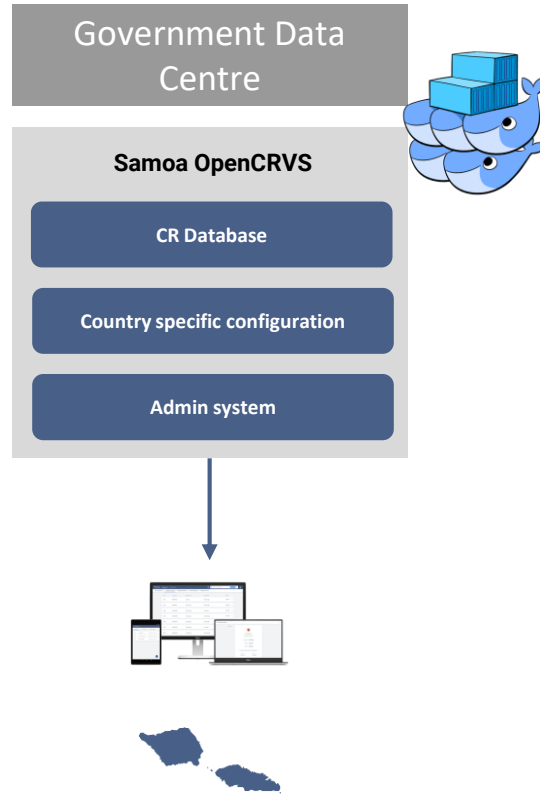


OpenCRVS deployment options in the Pacific Region

Example: OpenCRVS deployed on shared infrastructure in the public cloud



Example: OpenCRVS deployed in a National data centre



Implementation approach

1. Conduct rapid in-country feasibility test (3-4 months)

- a. Minimal country requirements / configuration
- b. Small scale pilot
- c. See it working, then gather feedback for full configuration
- d. Get buy-in from key stakeholders (across the region?)

Outputs: initial design, working cloud-hosted solution, business case for scale

1. Prepare for scale (6-8 months)

- a. Multi-country requirements
- b. Fully configured and integrated OpenCRVS system (e.g. with Health and National ID)
- c. Testing in different contexts (e.g. rural & urban, hospital, community, office)
- d. Rollout planning and test (training, change management, service management)

Outputs: finalised design for scaling, fully deployed solution, rollout strategy and plan

1. Deploy at scale (in multiple countries?)

Questions?

Thank you!

More info:

Code repository: github.com/opencrvs

Documentation: documentation.opencrvs.org

Website: www.opencrvs.org

Contact: edward.duffus@plan-international.org