



DATA MANAGEMENT AND CONNECTIVITY
HIV, TB, MALARIA, COVID-19
UGANDA EXPERIENCE
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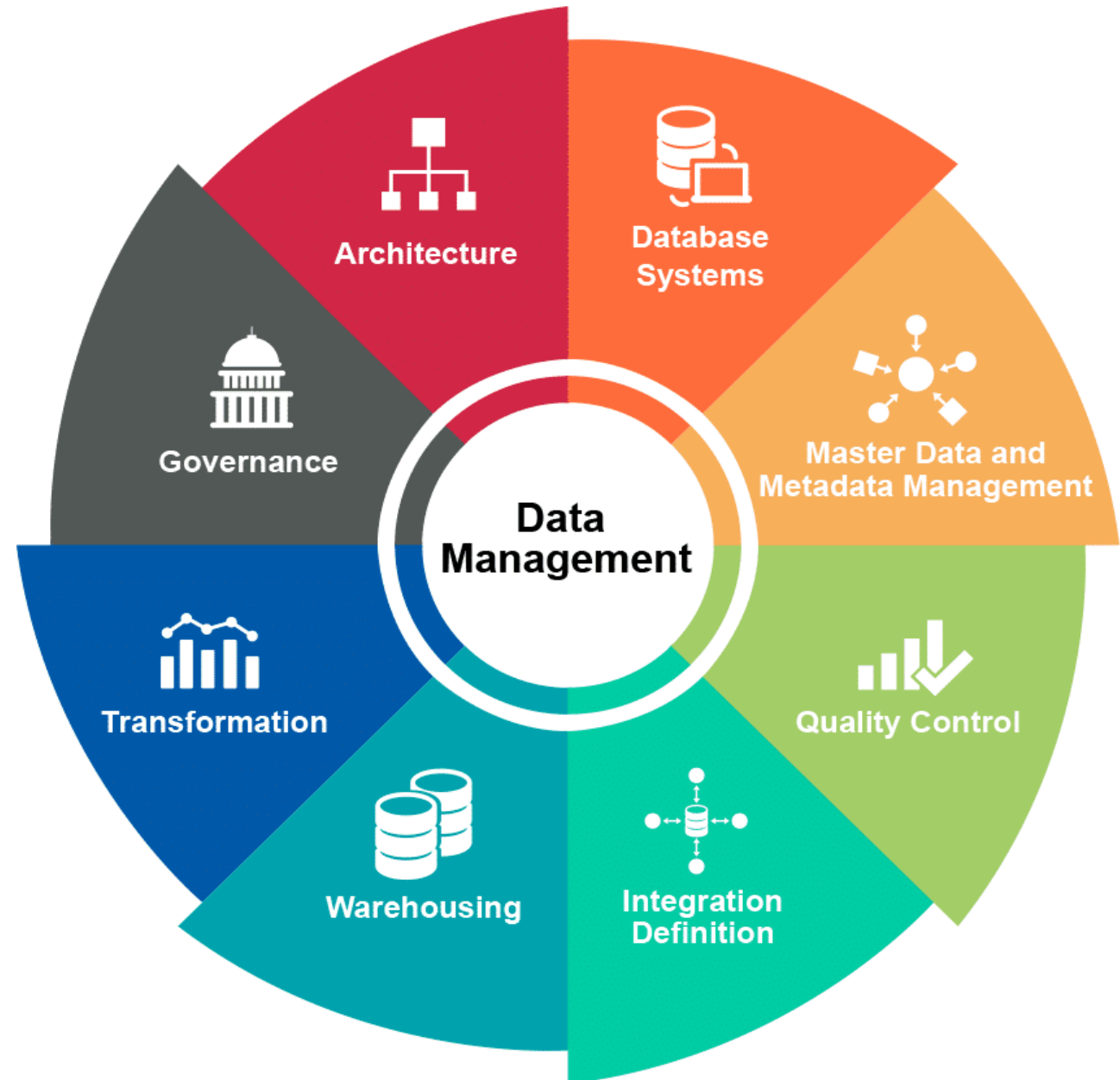
Presentation Outline

1. What is Data Management
2. Why should we care about Data Management
3. Uganda's Experience; Conventional and POC
4. Challenges
5. Suggestions
6. Conclusion

What is Data Management

Data management is the process of collecting, storing, protecting, analyzing and using data securely, efficiently, and cost-effectively.

Data allows **health systems** to create holistic views of patients, personalize treatments, improve communication, and enhance **health** outcomes



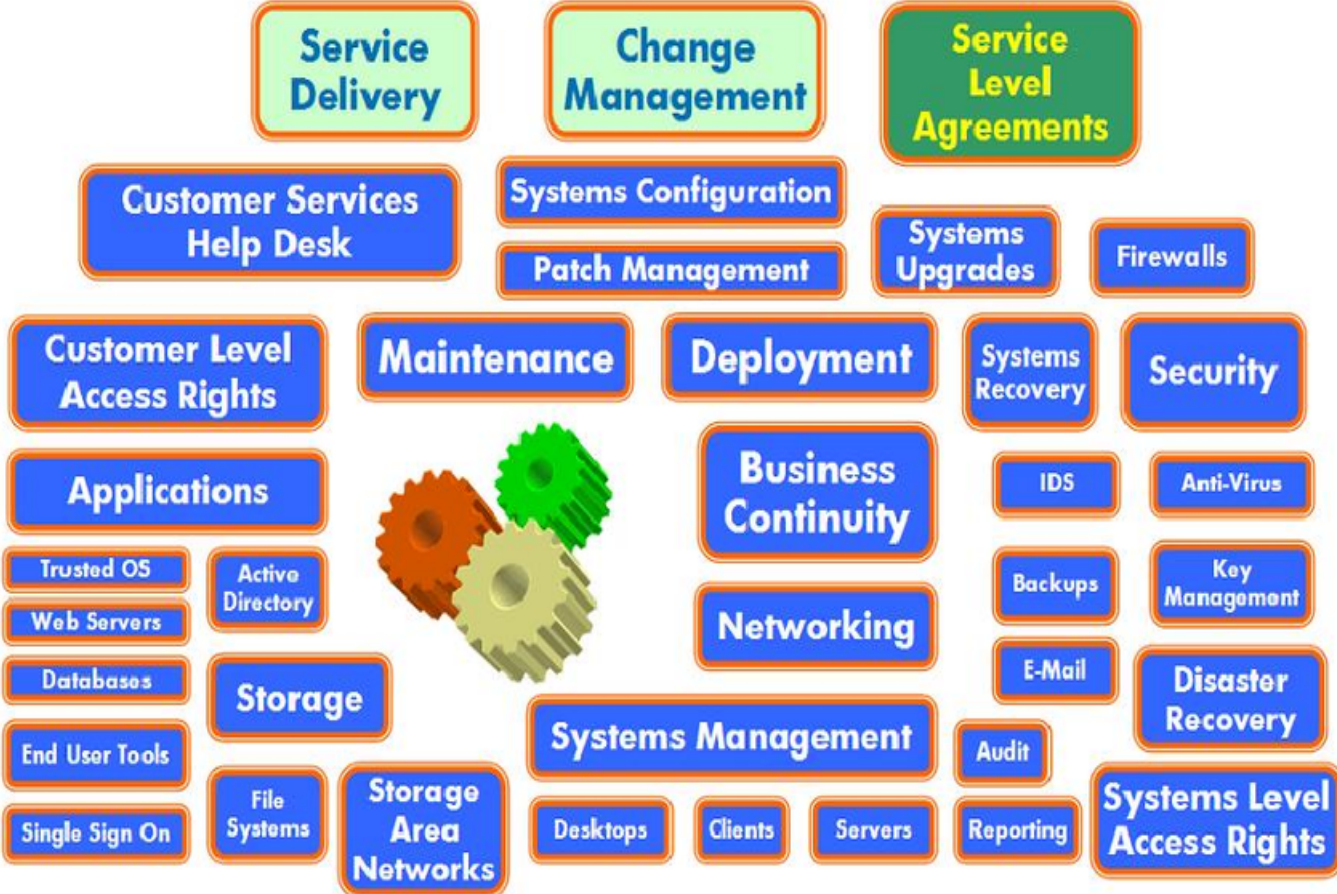
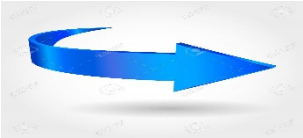
Why Data Management



- **No Data and Technology Equals Walking to a destination blind folded**
- **Improved and faster Patient Care**
- **Informed Data Driven Decision Making**
- **Research**
- **Simplifies reporting, monitoring and evaluation**

Why Data Management

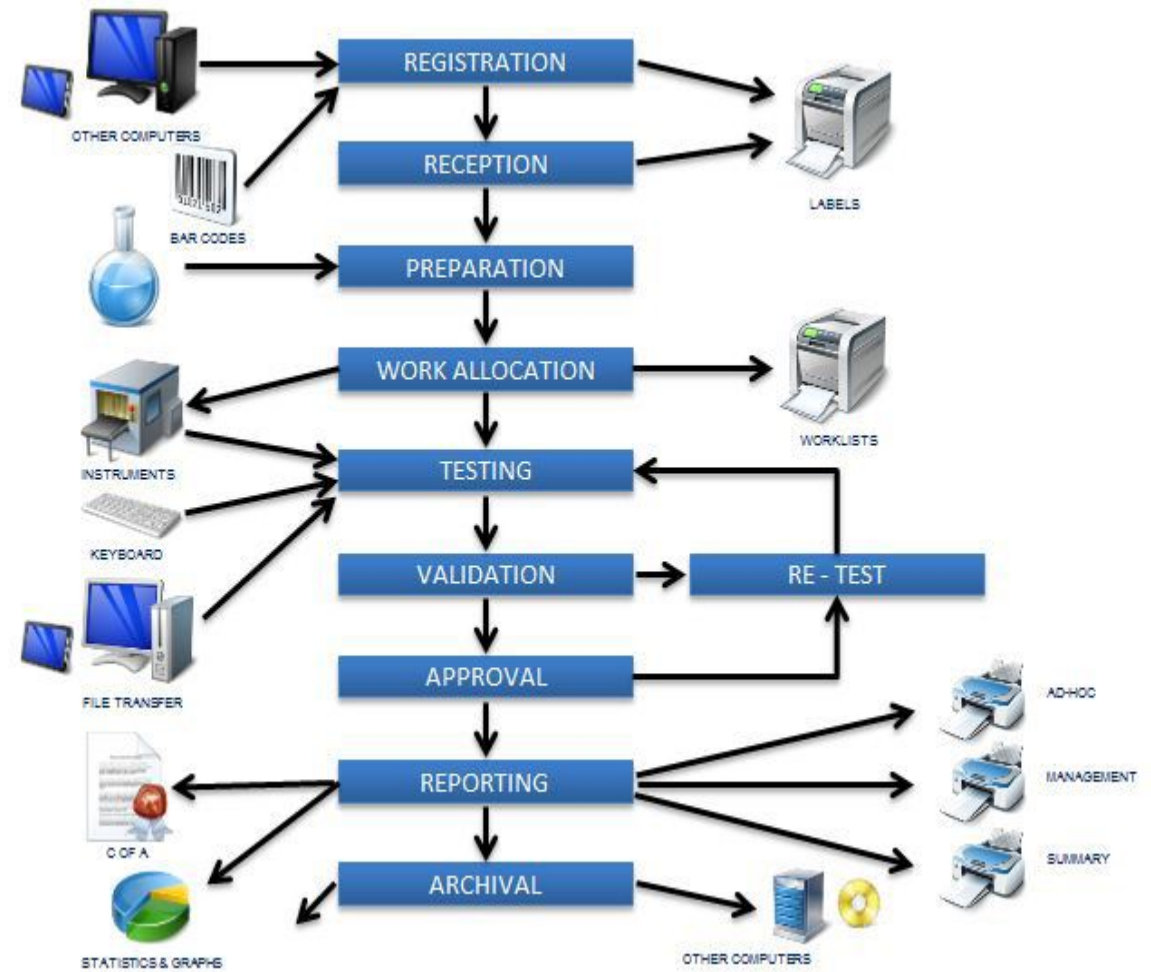
Transform Records



Paper and or Electronic

Why Laboratory Information Management Systems

- Automation of lab processes
- Timely Results
- Trace sample, machine, reagents, personnel and results involved in the analysis
- Collect, archive and use lab data to make informed decisions



Uganda's Experience with Laboratory Information Systems

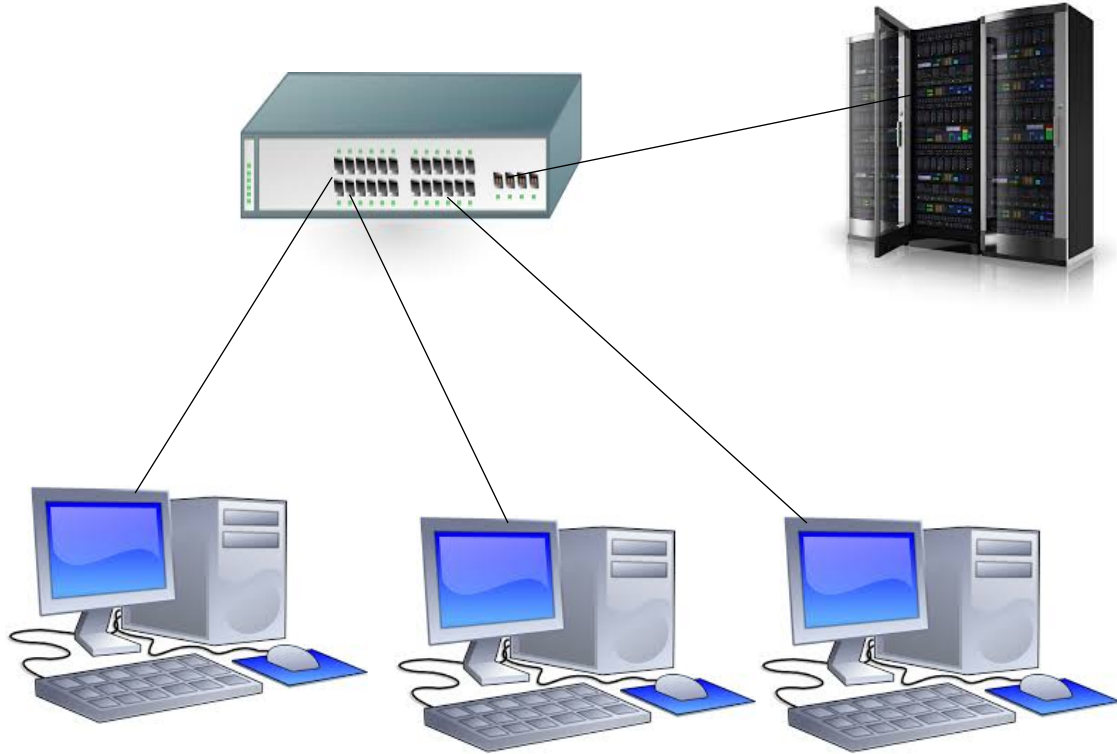
Which problem is LIMS solving?

- Too many records and entries leading to Manual transcription errors
- Long Turn around time and reporting of patient results therefore delayed care of patients
- Referral samples are not traceable , manual accountabilities and reports are hectic
- Several systems but scarcity of data for urgent decisions





Systems in place to solve the problem

- HIV /HEPB Viral load LIMS
- Early Infant Diagnosis HIV/SCD
- Africa Laboratory Information System (ALIS)
- Electronic Results Dispatch module (eRD) for real time results access
- Results and Sample Tracking system (ResTrack)
- Inventory Management System (IMS)
- Facility commodity ordering system
- Interoperability (HIE)
- COVID-19 Results Dispatch

Uganda's Experience; Conventional and POC



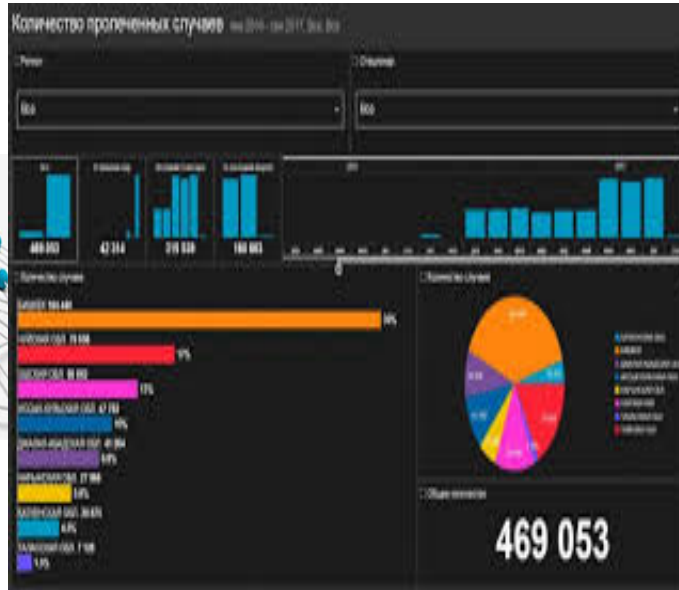
Recieve → Accession → Process

<i>Inhouse systems</i>			
Viral Load	EID/SCD	Hepatitis	Activity Module
ALIS-MicroB	Inventory mgt System <small>System used to request, process and store data for commodities</small>	Cytoflex Mgt System	Archival System
Hub Operations Module	ALIS-HPV	Customer Relations Module	Clockin System
<i>Dashboards and public systems</i>			
Viral Load dashboard	Eid dashboard	Hub Operations Module	Facility Inventory System
CPHL Website	QA Dashboard		  

Conventional – LIMS and Dashboards-Remote



GeneXpert located at Facility
interfaced with the ALIS



Real time
National Dashboard



GeneXpert located at Facility
interfaced with the ALIS

Use of internet to allow real time transmission of Data
To promote Real time reporting and Data driven decision making

Convectional: Electronic Results Dispatch

Warr HCIV



Jinja RRH



Matany Hospital



Central Public Health
Laboratories Data systems



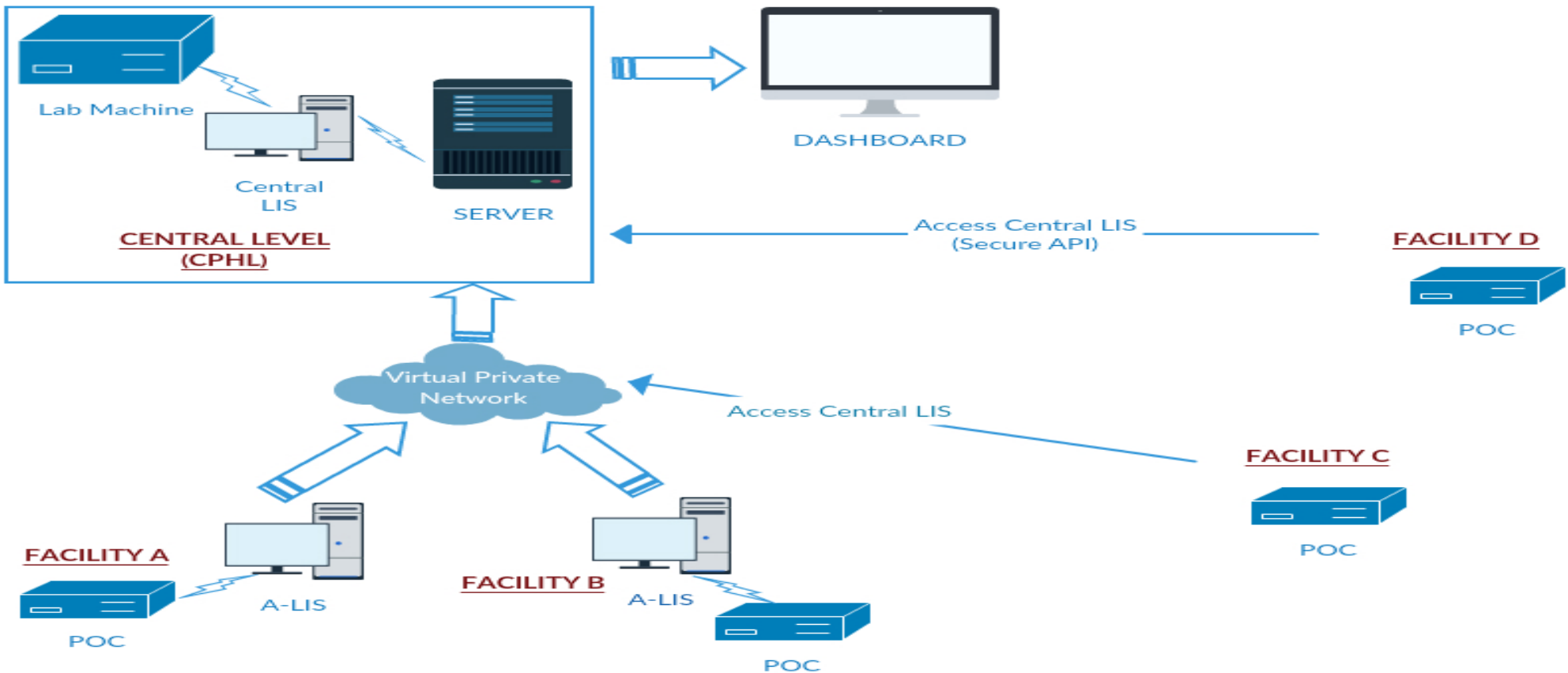
Kabale RRH



Rushere HCIV



Connectivity: provide visibility to monitor and manage the performance of the machines, and report results at central location



Connectivity solution to simplify data aggregation and timely reporting

Connectivity solutions used in Uganda

Modem

A USB *modem* provides you *with* dial-up capabilities so you can *use* a phone line to connect to the *Internet*. Each *Internet Service Provider (ISP)* has its own number where you dial up and connect to the service's servers.



These are mobile and in most cases assigned to only one user at a time

Hybrid of internet Connectivity solutions

Very Small Aperture Terminal (VSAT)

Uses a very small dish capable of receiving

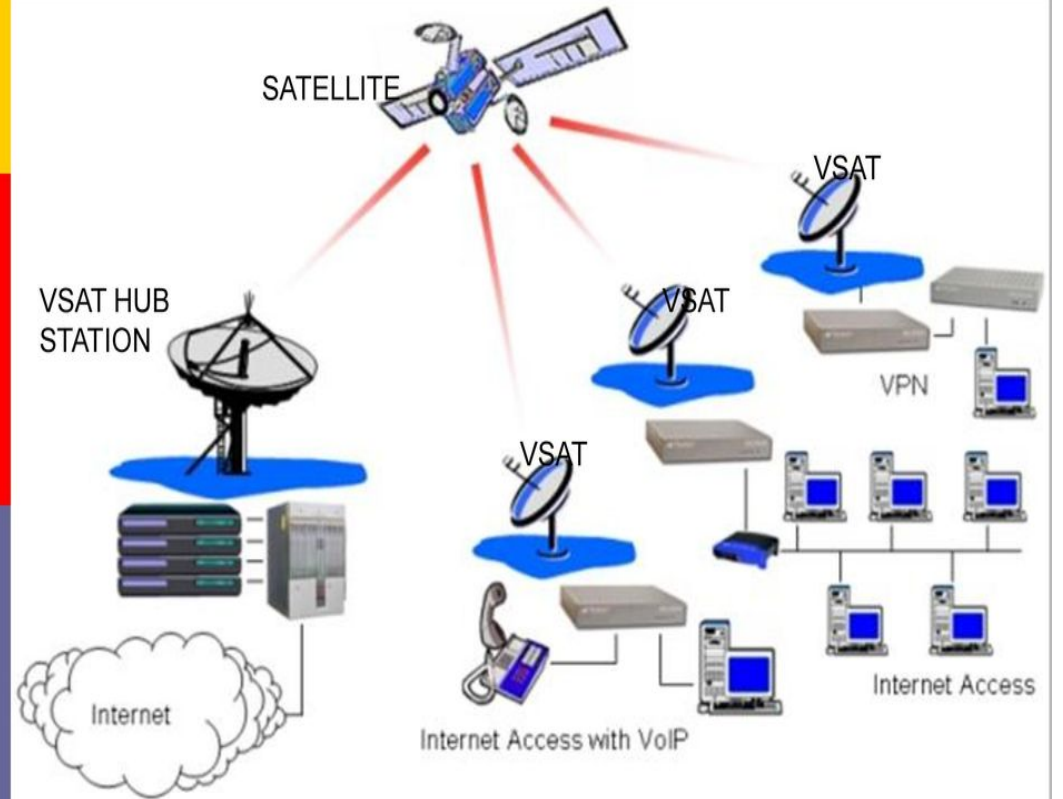
and sending satellite signals.

Can be designed to use both broadcast

and interactive applications

whether data, voice or video

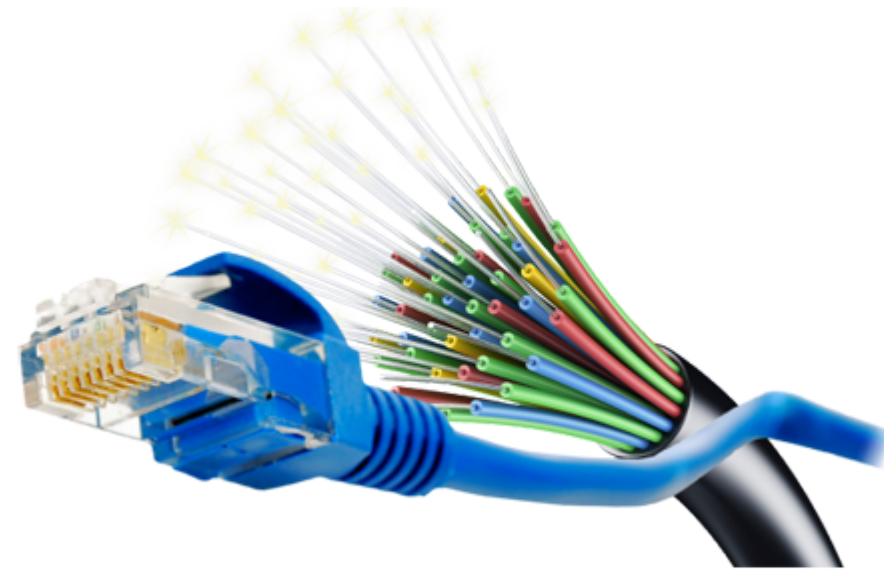
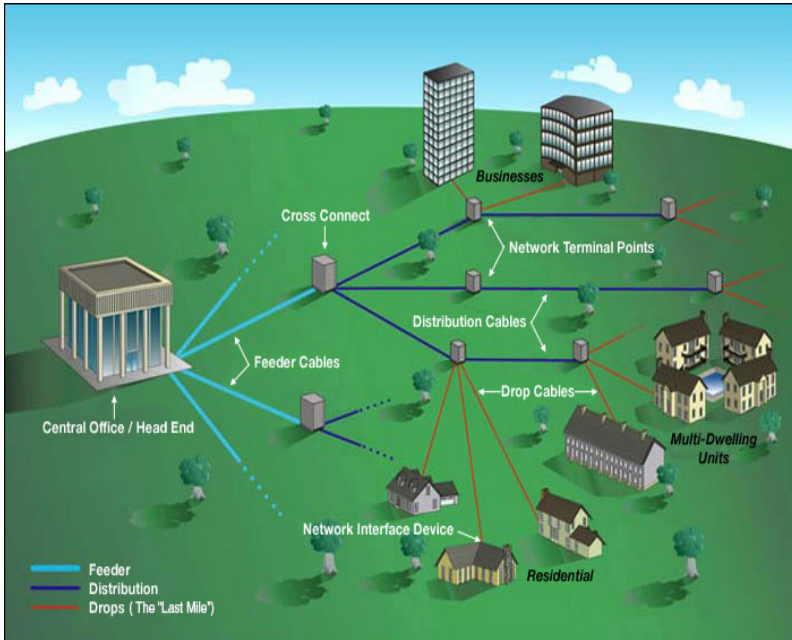
TYPICAL VSAT NETWORK



Connectivity solutions used in Uganda

Fiber-optic communication is transmitting information by sending pulses of light through an optical fiber.

Fibre optical networks offer increased bandwidth as well as provide higher capacity and reduce overall costs



Ongoing implementation of for last mile connectivity to health facilities by NITA-U Under MoICT

On going Projects

- Data warehouse for Laboratory Data (DHIS2 Connector)
- Health Information Exchange for LIS and EMRs
- Internet connectivity plan

Challenges

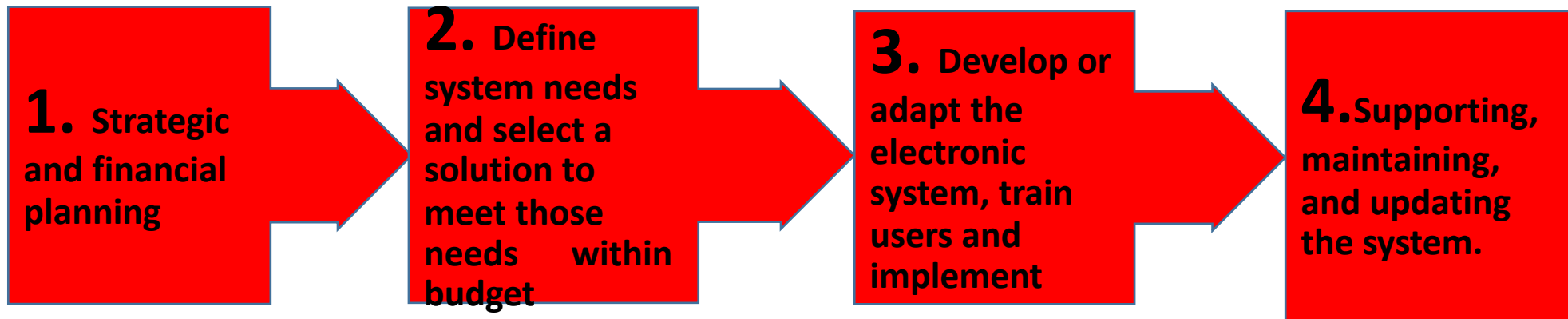
- Change Management from paper to electronic
- Adoption and acceptability
- Internet connectivity
- Training plan
- HR Gaps (Lab tech vs Data Officers)
- Software updates with changes in processes
- Hardware gaps

Suggestions and way forward

- Embrace, plan and use Technology
- Standardize and Utilize Data
- Incorporate Technology
- Standardize Data
- Seamless information exchange
- Protect sensitive data

Conclusion

Design and implementation of Data management Systems requires a team of experts who understand concepts of **Public health (Laboratory and Clinical)**, software design, systems analysis, and logistics planning —including finances.



A detailed project plan (“who, what, where, and when”) to improve efficiency and effectiveness of the process.

Define Business processes

Thank you!

