COMPUTERIZATION OF POLICE WORK IN KARNATAKA (POLICE IT ECOSYSTEM)

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Introduction

Information and data are critical for decision making, user references and business communication not only in corporate world but also in public administration. It is also imperative that data is preserved, integrity is maintained, retrieved when needed and that it allows timely processing for service delivery and reporting. Demand for instant access, real time processing, enhanced service levels and faster turnaround is growing with increased transactions even though work-force remains limited. ICT has evolved as powerful tool to address this situation which builds service efficiency and brings transparency and accountability. KSP has been pro-active in adoption of technology driven partly by underlying organizational challenges and partly by the vision to improve its operations and service delivery capabilities. It has been a long journey of transformation from the manual paper based FIRs to end-to-end digital investigation of Crime. **The Police IT Eco-system developed in Karnataka and the operational and governance structure created for this purpose has been the key to its robust functioning. All components can be replicated, inclusive of the modules of Police IT which can be replicated in any combination of modules or the whole software itself.**

The diagram below outlines the composite implementation model of KSP computerization:

Figure 1: Police IT Ecosystem

It was decided to go for **centralized and comprehensive software application** which will cater to all functions of the Police. An ERP was the solution. Easy maintenance, real time availability and ease of integration were some of the benefits that fuelled this vision. It was realized that any ERP system would need centralized hosting infrastructure and robust network which necessitated the setting up of **KSP Data Center and KSP Wide Area Network**. Special attention was given to **build internal capacity** so that external dependency would be kept as minimal. Internal resources were trained on professional IT skills for

smooth operation and maintenance of the Police IT systems. **Police IT application was rolled out across the state after putting the whole eco-system in place**. These initiatives were both need based and futuristic in nature driven by 'the then challenges' faced by organization and foresight of future requirements and advances in technology. We look forward to scale greater heights through introduction of advanced technology such as cloud, crime analytics and mobility.

Police IT Software

Karnataka State Police functions on the **Police IT ERP Software**. In the year 2014 every single FIR in the state was generated out of this software. Police-IT was conceptualized in the year 2000 by the Government of Karnataka for implementation of a state-wide IT solution for the Police Department. **It's roll out started in April 2010 and was completed in a year.** The software is now operational at all **931 police stations, 221 circle offices, 121 sub-divisional police offices, 30 districts, 5 commissionerates** and all higher police offices in the state. It is **modular** in nature based on **centralised architecture**. In the CCTNS, Karnataka was one of the advanced states and was thus permitted to continue with its own software. **Thus Police IT is the front end of the CCTNS in Karnataka.** Crime and Criminal Tracking Networking and Systems (**CCTNS**) was conceived and incorporated in the Eleventh Five Year Plan as one of the **Mission Mode Project under the National eGovernance Plan.** Police-IT system has been enhanced to add new capabilities envisaged under CCTNS project. The functionalities and features are broadly indicated in the following diagram:

Figure 2: Police IT Software – Functional overview

Number of screens and reports

Modules	No Of Screens	Reports	Total
General	8	10	18
Crime	102	105	207
Admin	110	44	154
Finance	75	66	141
Law & Order	80	37	117
MIS	3	11	14
FSL	26	21	47
Wireless	9	5	14
Training	24	15	39
Armed Reserve	15	12	27
Motor Transport	22	19	41
Traffic	15	53	68
Stores	33	19	52
Total	522	417	939

Table 1: Function wise details of Police IT

There are **12 modules** in the software and their usage are outlined below:

1. **Crime**: With investigation at its core this module facilitates the collection of detailed information on crime and criminals and creation of databases to assist the name with various reports and searches.
2. **Law & Order**: It maintains records pertaining to various activities within the Police Stations including SHD, foreign nationals, VIP movements, activities of fundamentalist organizations, riots, agitations etc.
3. **Traffic**: This module covers various enforcement activities related to traffic. This module captures data related to accidents and fine collections. It generates statistical reports on various parameters related to accidents and fine collection.
4. **Finance**: This module captures information pertaining to annual budget and expenditure of the department, financial transactions like payables to various vendors, loans to police personnel, lent establishment collection, billing and all financial transactions of the police department.
5. **Administration**: The module supports personnel administration related activities starting from recruitment till retirement through maintenance of service records, transfers, leave, punishments, promotions, retirement and into pension initiation.
6. **Stores**: The Stores module takes care of stocks, purchases, indent, issues of all items used in Police Department and Police Properties like land, building and quarters. The details pertaining to kit articles are also maintained.
7. **Armed Reserve (AR):** The details of deployment of platoons or personnel at various places for performing Law & Order tasks by State Reserve Police, City Armed Reserves and District Armed Reserves are captured in this module.
8. **Motor Transport:** This module maintains day-to-day activities of vehicles, drivers and fuel consumption of vehicles. It also handles all the activities related to procuring and maintenance of vehicles and purchase against condemnation.

1. **Training**: This module covers all the activities related to management of training courses at the various institutes and units. Also, the details related to on-the-job training provided to each person is captured in this module.

2. **Wireless**: This module captures the data pertaining to the operations of the wireless and control room. Operations covered under this module range from maintenance of wireless log, transmitting of approved messages, message logs, etc.

3. **Forensic Science Lab:** FSL is the testing laboratory of the police department, which conducts various tests on the requests coming from the police department and other Government departments. This module captures the administrative functionality of the FSL Unit as a whole.

4. **MIS**: Management Information System module provides the information dashboard to all senior officers in a tabular and graphical format pertaining to all modules of Police IT.

KSP Wide Area Network

KSPWAN, wide Area network was created in 2009 exclusively for connecting Police stations, Circles, SDPOs, and other offices of special units spread across length and breadth of Karnataka into one network. The basic purpose of creating such vast network is to adopt the latest technology to cater to faster and easier mode of communications within this network to achieve the day-to-day information exchange of the Karnataka state police force. KSPWAN is combination of 45 MPLS and 1465 VPNoBB connection. **It is the only fully functional broadband networking owned and operated by any state police force in the country.** It is fully online system and Police IT does not have an offline mode.

a. NMS for complete monitoring of Network

b. Automatic link failover protection

c. Implementation of Fixed IP at all VPNoBB location and Router hardening to avoid unwanted traffic.

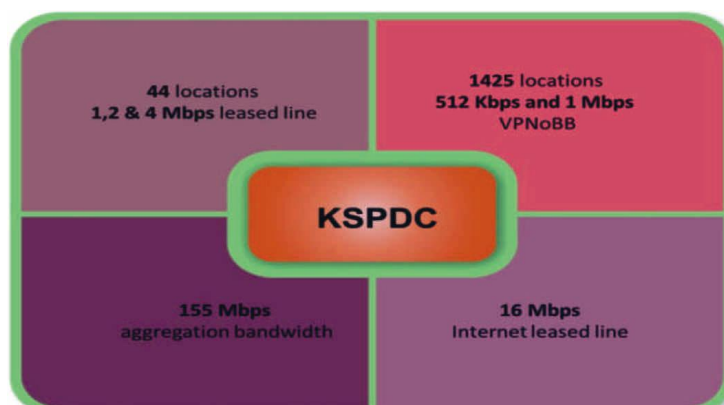**The coverage and strength of KSPWAN**

Figure 3: KSP Wide Area Network Capacity

SP Data Center and Disaster Recovery Site

Karnataka State Police has its own state of art green data-center services at KSRP 3rd Batallion, Bangalore. This is the only Data Center created and run by any state police in the country. The data-center built in 1400 Sqft. of area which includes Data Center Server room, NOC room, and Electrical & UPS room. The Data Center has the capacity of hosting 5 server rack and 3 network racks for all KSP IT requirements. Started in Jan, 2011 KSP DC is hosting the following services to department.

a. Police IT
b. E-Mail
c. Website
d. SMS gateway
e. Active Directory
f. EMS
g. Antivirus and Patch Management

The KSP Data Center is managed professionally by dedicated team with best practices in place such as 24/7*365 NOC operations, Proactive Monitoring, Preventive Maintenance and Backup/ Restore policy.

Disaster Recovery (DR) Site has been set up in New Delhi at National Data Center under maintenance of NIC. The DR site will provide alternate hosting facility at remote site as backup of data and application at KSP DC which will ensure uninterrupted operations in case of exigencies. Link between KSPDC and DR site is already established and data of KSP DC has been replicated to DR site. The hosting infrastructure is shown in the diagram below:
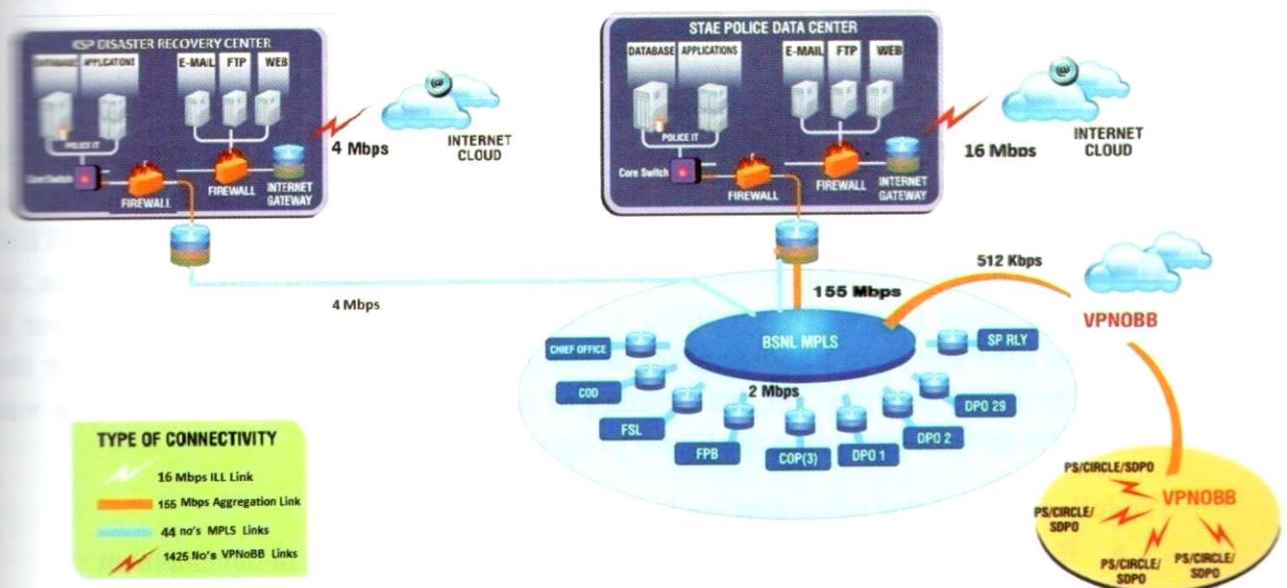
KSP DC& DR

Figure 4: Core Infrastructure – KSPDC and KSPWAN

Training

Creation of well-trained technologically enabled human resources to create and maintain the Police IT Ecosystem critical components has been the cherished goal of capacity building in Karnataka. KSP has taken innovative approach to capacity building with initiatives like Training and Certification of Police Personnel in System Administration and Change Management Workshops for Senior Police officers etc. KSP also has established its own Training Infrastructure at regional levels. The Program involved creation of a detailed and effective training strategy, user groups and classifications, training plan and guidelines, detailed training material, training program designed for customized delivery to the target groups. The main challenges to be addressed were the geographically dispersed trainee base, wide variability in education and computer proficiency. The training program was well planned and executed as shown in the diagram below:
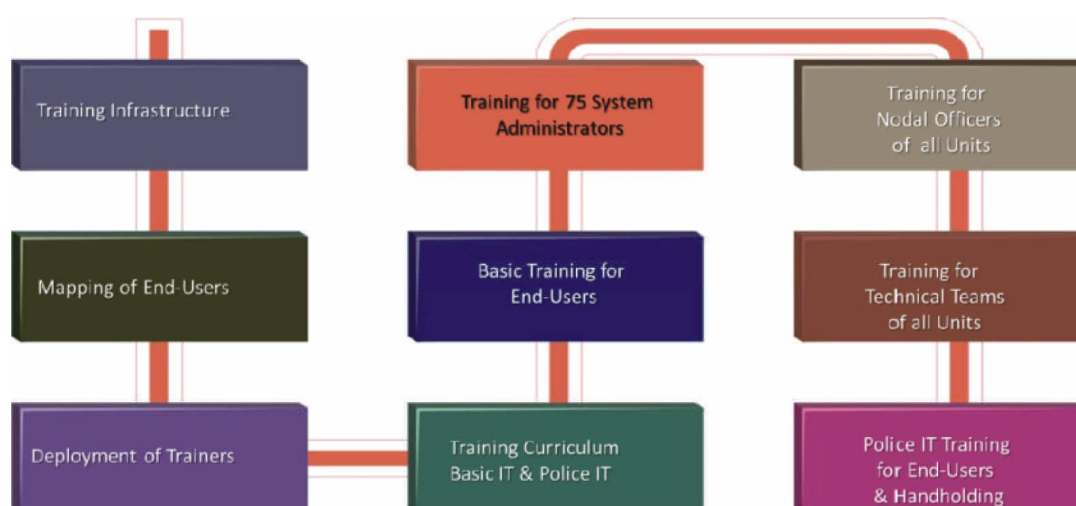
Police IT Training Ecosystem

Figure 5: Capacity Building Plan

In the days of creation of the Police IT system was the innovative training of 75 selected police personnel in MCSE and CCNA which provides is at the base of complete IT functioning today also. They are known as SYSTEM ADMINSITRATORS and have done yeomen service to the computerization of Karnataka State Police. The creation of band of Police IT module trainers over a period of time has been another great accomplishment and they are spread over the state. The CCIS provided for the training of large number of police staff which was used in this project providing the linear progression of talent.

The **following training programs** are being run by KSP:
*   **Basic IT Training** – designed for basic IT orientation and skill development
*   **Role-based Police IT Application Training** – designed to increase user's familiarity with software

- **Basic System Administrator Training -** designed to build professional skills for O&M support

- **Train the Trainer –** designed to create internal pool of skilled trainers

Each Training ends with an online Evaluation test for the trainees. KSP provides an online test tool which is installed in each training centre. All trainings are given along with the certification from the system integrator. Change Management workshops are conducted to build appreciation of change within KSP.

Following Best Practices have evolved over years of innovation and experiential learning:

- **Dedicated Core team for software to create SRS, Perform UAT and run police IT application and provide support to end users**
- **Technical man power created to run all tracks of CCTNS**
- **Knowledge based empowerment of manpower**
- **Centralized architecture with complete online**
- **Project Management: Karnataka has delivered successful Police IT Application**
- **Centralized Helpdesk and call management software**
- **Centralized patch management and Antivirus management**
- **Failover Protection**
- **Integration – With Public Services and SMS Gateway**

Conclusion

Unlike any large enterprise wise IT enabled transformation program, KSP computerization project has been a herculean task that required interventions at all the organizational components; be it People, Process, Technology, Infrastructure and most importantly Governance through tireless drive of leadership and clear vision of what lies ahead. The development of comprehensive software package has been possible only through constant collaboration of police personnel across levels of hierarchy and sound project management by the Police Computer Wing. The software today allows users at all the police stations to register crime online and undertake end-to-end investigation through Police IT software. While KSP data center and private network has provide a solid backbone for 100% project coverage, presence of certified internal resources at district levels, domain champions at SCRB and thought leaders among senior ranks of KSP have been the critical success factor in the IT led transformation of the State Police. The Project is dedicated to the employees of Karnataka State Police who have envisioned, driven and adopted the change!