

eDistrict Workshop - Day 1, 12th April 2013

Session 1	eDistrict Success Story	
	<ul style="list-style-type: none">• eDistrict Pilot status, challenges & strategies to overcome	<u>P-2-19</u>
Session 2	eDistrict Architecture	
	<ul style="list-style-type: none">• Overview	<u>P-20-45</u>

Assam e-District Pilot: Lessons Learned

Challenges & Strategies

E-district Pilot

- Pilot was conducted in two districts
 - Goalpara & Sonitpur
 - Enabling gPO issued on 4th August, 2009
 - Project was launched in November, 2010
- 15 nos. of services identified
- Digitally signed Certificates issued
- Plain Paper/ no Special Stationery
- Service delivery through
 - CSC and e-dist. Facilitation center

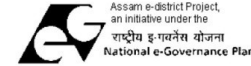
Services identified for Pilot

Service category	Name
Certificate	<ul style="list-style-type: none">•Permanent residence•Senior Citizen•Next of Kin•Non-Creamy Layer•Land Valuation•Bakijai Clearance•Income Certificate
Permission	<ul style="list-style-type: none">•Permission for Delayed Birth Registration•Permission for Delayed Death Registration•Permission for Special Events U/s 144 CrPC
Certified copies	<ul style="list-style-type: none">•Certified Copy of Electoral Roll•Certified Copy of Mutation Order
Pension	<ul style="list-style-type: none">•National Old Age Pension Scheme•National Family Benefit Scheme
Others	<ul style="list-style-type: none">•Jamabandi for Surveyed Villages•Grievance•Information under RTI Act 2005•First Appellate Authority

E-DISTRICT CERTIFICATE



GOVERNMENT OF ASSAM
OFFICE OF THE SUB-DIVISIONAL OFFICER
BISWANATH CHARIALI :: SONITPUR DISTRICT



PERMANENT RESIDENT CERTIFICATE



1706201000004834

Date: 17-06-2010

This is to certify that the person with the following details :

Name	BABLY KHATUN
Name of Father	MD. ABDUL BAREK BEPARI
Name of Mother	SALEMA KHATUN
Revenue Circle	BISWANATH
Village / Town	AMBARI PAVOI ROAD
Post Office	CHARIALI
Police Station	BISWANATH CHARIALI
Sub - Division	BISWANATH CHARIALI
Purpose of Issue	Admission into higher educational Institutions

is Permanent Resident of **SONITPUR**

This certificate shall not be valid for any other purpose other than the purpose stated above.



Signature of the Approving Authority

Signature valid

Digitally signed by Phukan
Phukan
Date: 2010.06.17 11:29:42 IST
Reason: e-District Portal
Location: Assam

NOTE :

- . This order is digitally signed and therefore needs no physical signature.
- . Authenticity of this order can be verified from <http://edistrict.assamgov.in>. This Order is legally valid as per the Information Technology ACT. 2000 and its subsequent amendments.
- . Tampering of this order will attract penal action.

E-district Pilot : Service Delivery 31st March, 2013

District	Applications	Approved	Rejected	Pending
Goalpara	32581	26889	2599	4851
Sonitpur	42683	35868	3483	3332
Total	75264	62757	6082	8183

E-district Pilot : Challenges on the ground

- CSCs connectivity
- Non availability BSNL bandwidth at SWAN PoPs
 - State has arranged connectivity of its own
 - Extra effort in terms of time & cost
- Unreliable power down below DHQ
 - Higher rate of damage of IT assets

E-district Pilot : Challenges on the ground

- Digital signature management
 - Transfer of Officials
 - Delay in issuance
- Equipment down time
- PoP Connectivity downtimes
- CSC connectivity downtimes
- Temptation for manual issuance

E-district Pilot : Challenges on the ground

- Public outcry and emergencies
 - Dead-lines:
 - Certificates needed for jobs and admissions
 - Mainly due to system downtime
 - Non Acceptance of certificates by certain authorities
- Newly transferred officials' resistance to change
- Are VLEs and officials developing a nexus?
- Now implemented FIFO
- Lack of awareness and publicity

E-district Roll Out : New Strategies

- State initiatives on connectivity
- Solar power for CSCs and PoPs
- Digital signature: Sub CA by AMTRON
- Bringing offices outside the DC establishment in the loop
 - Police
 - Health
 - Zilla Parishad/Caste certificate issuing NGOs
- SMS integration
- Call center
- Manpower at Circle Office level being thought

E-district Pilot : SSDG Integration

- SSDG Integration already achieved on 31.03.2013
 - Only two services on pilot basis: PRC/DBDC
 - SMS integration with SSDG
 - State's own gateway
 - Payment gateways:
 - ICICI PG tested
 - Youpay PG underway
 - SCA portal Integration issues under process
 - SCA portal
 - SCA PG

E-district Roll Out : High Lights

- Revised BPR for each service
- Repository of DSC
- Access from anywhere: Mobile/ SSDG
 - SSDG declared as compulsory for all e-services
- Focus on Across the Counter Services
- Revamping of Pilot application for state wide roll out
- Cloud based services
 - Cloud already functional in MiniSDC

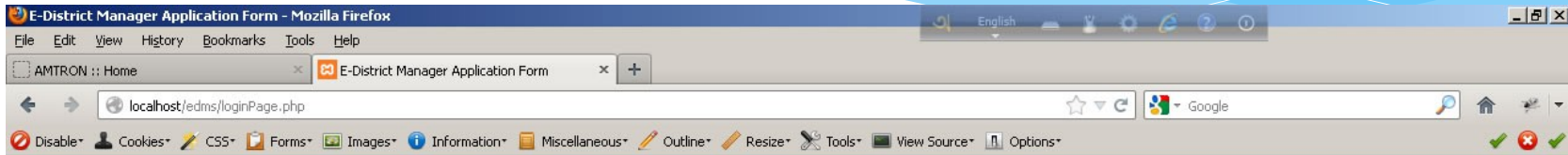


DPM RECRUITMENT: EXPERIENCE SHARING

Essential Qualifications

- * **Name of Post:** e-District Project Manager
- * **No. of Posts:** One post in each of the 27 districts in the State of Assam.
- * **Educational Qualification:** BSc. Tech. / B. Tech. / MCA / B.E. / MBA / M.Sc. in Computer Science Engineering or Information Technology / DOEACC 'B' Level certificate from reputed institutions with 65% marks in aggregate or equivalent in the final examination
- * **Work Experience:** A minimum of 2 years of work experience, preferably in IT / e-Governance related field is essential.
- * **Age limit:** The candidate should have been born not earlier than 1st July 1977 and not later than 1st July 1991

Web Registration & Login



Recruitment of e-District Manager under e-Governance Society

Online Registration Area

Login area

User Name:

Password:

- Your USER-ID and PASSWORD are case sensitive.
- If you have not registered yet, kindly SIGN UP first.
- Once the Sign Up process is completed you will receive a confirmation mail.
-

[Submit your PROBLEM](#)

Candidate Sign Up

Candidate Name :

Father's/Spouse Name:

Relation:

Date of Birth:

Gender:

Mobile No:

Email ID:

After registration, applicants were required to login to the system with the username and password sent in their email ids.



Assam Electronics Development Corporation Ltd. (AMTRON)

(A Government of Assam Undertaking)

Industrial Estate, Bammuni Maidan, Guwahati 781021, Assam, India
Fax No. +91 361 2724131, 2724181 Tel. No. +91 361 2724 222

ADMIT CARD

RECRUITMENT FOR e-DISTRICT PROJECT MANAGER | WRITTEN EXAMINATION

Centre No. 22X	Centre Name: ABC College, Guwahati, 781004, Assam	Passport Photo as uploaded in application form	
Candidate Name & Address: ABC XYZ Lane, House No. 4 Dibrugarh - 786602, Assam	Date of Birth: _____	Date of Exam: _____	Time of Exam: _____
			Bar Code of candidate (overlap with photograph)
		Reporting Time: 9:00 AM	Gender: Male/Female
Roll No.: XXX-XXXXXXX	Registration Sl. No.: (as in website)	128 Bit Encrypted Code	
	Signature of Candidate #:	[Signature here]	

FOR OFFICE USE ONLY:

RECORD OF WRITTEN TEST:	RECORD OF VIVA VOCE:
Registration Desk: _____	Interview Desk: _____
Reporting Time: _____	Date & Time of Interview: _____
Alloted Hall No.: _____	Age: _____ Verified: YES / NO
Alloted Seat No.: _____	Bachelor Marks: _____ Verified: YES / NO
Examination Hall: _____	Masters Marks: _____ Verified: YES / NO
Entry Time: _____	Qualifying Degree: _____ Verified: YES / NO
Exit Time: _____	Yrs. of Experience: _____ Verified: YES / NO
Signature of candidate*: _____	Interview Score: _____
Signature of invigilator: _____	Signature of Chairperson Interview Panel: _____
Assessment Stage: _____	
Marks Obtained: _____	
Signature of Examiner: _____	
Qualified for Viva-Voce: YES/NO	

<input checked="" type="checkbox"/> SELECTED	<input type="checkbox"/> REJECTED	<input type="checkbox"/> 28	<input type="checkbox"/> WAITLISTED
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* Candidate Signature should be put after printing the complete admit card

* Candidate Signature should be put in front of the invigilator

TERMS AND CONDITIONS

- This Interview Call Letter is provisional and does not amount to any promise of issuance of offer/appointment letter to any candidate. It is issued to the condition that if ineligibility is detected at any stage, the candidature will be cancelled.
- The candidate is required to bring one set of the complete admit card consisting of 2 pages at the time of interview/written exam.
- The candidate is required to put his signature in ink in only designated places in the admit card along with name of place and date.
- The candidate shall have to appear for a written test consisting of ___ no. of questions to be answered in ___ minutes. The qualifying marks in the written test shall be ___%. Only the candidates scoring ___% and above shall be able to proceed to the next round of viva-voce.
- The time & venue of viva-voce would be informed through email only to the candidates scoring the qualifying marks of ___% or higher.
- The candidates are required to produce all their documents in original for verification at the time of viva-voce. Failure to produce any documents in original may lead to cancellation of candidature.
- Candidates MUST bring at least one original and valid (not expired) photo identification to the test centre/venue. The name on the photo identification must match your name as entered in the online application. Acceptable forms of photo identification are limited to Driver's License, Passport, PAN Card, Voter ID, Aadhar Card, 10th/12th Admit Card/Certificate having photograph of the candidate, Identity Card of the institution/organization last studied or employed, bearing photograph of the candidate.
- Electronic Gadgets such as mobiles/tablets/camera/Bluetooth devices etc. are STRICTLY prohibited in the written test/interview hall. Candidates found in possession of such electronic gadgets are liable for penal action/ cancellation of candidature. No eatables/water bottles are allowed inside the test hall.
- The test centre/venue gates will close 15 minutes before the test start time. No late entry is permitted after that.
- Do not attempt to give/obtain irregular assistance of any kind during examination/interview. Indulgence in the same shall invite penal action/cancellation of candidature. Improper conduct will entail expulsion from examination/ interview and cancellation of candidature.
- The employment is purely contractual in nature; and does not constitute in any manner any commitment for future absorption in AMTRON/ Govt. of Assam.
- There is no guarantee that the candidate shall be accommodated only within the districts of his/her choice. Further, he/ she could, during the currency of engagement, be transferred to any district within Assam, irrespective of the initial preferences offered by the candidate.
- Failure to comply with these instructions will entail registration of unfair means case and action as deemed appropriate by Interview Board shall be taken including but not limited to cancellation of the candidature.
- Jurisdiction for disputes, if any, shall exclusively be before competent courts at Guwahati only.
- Candidates are strongly advised to read the detailed Terms and conditions in advertisement carefully.
- In case the candidate is offered an appointment, he/she shall abide by the rules and regulations/statutes of Government of Assam/Department of Information Technology/AMTRON/DeGS.

I do hereby declare that I have read and understood the detailed terms and conditions as mentioned in the website and agree to abide by the above terms and conditions of eligibility, application & employment.

Date: _____
Place: _____

Signature of Candidate

Bar Code of candidate same as 1st page barcode

Terms and Conditions

<http://webservers.amtron.in/print/admitboard.html>

Page 2/2

Admit Card

Written Test & Interview

- * **Written Two Papers: Total 3 Hours**
 - * **Paper 1:** Objective Type, **OMR** based, 150 Marks, 2 Hours
 - * **Paper 2:** Descriptive Type with questions on eGovernance, NeGP, etc., 40 Marks, 1 Hour
- * **Paper 1 result** OMR based
 - * Evaluated on the Spot
 - * Examinees informed who qualified in Paper 1
 - * Move to Interviews with Paper 2 evaluation
- * **Interviews**

Training & Capacity Building of DPMs

- * 1 month training proposed from 22nd April, 2013
- * Complete familiarization to NeGP Frameworks
- * Field visits for CSCs, SWAN PoPS, e-Dist Pilot
- * Exposure on SSDG, SDC, Cloud, MMPs
- * Exposure on existing applications
- * Familiarization on District Administration
- * Office productivity Suite
- * Accounting and MIS
- * Digital signature management



THANK YOU

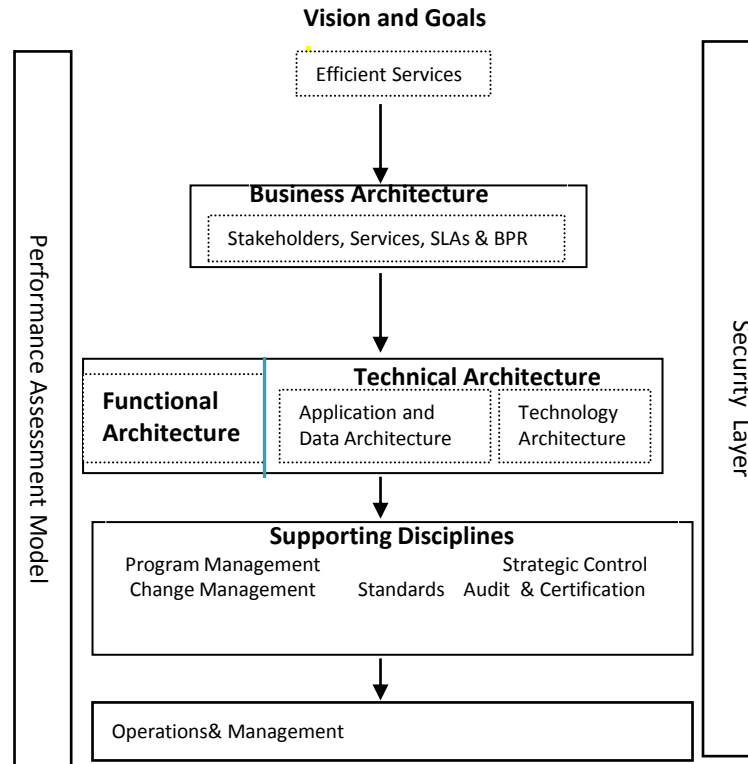
Integrated ArchitectureFramework for Delivery of Services

Dr. RAJESH NARANG
NeGD, DeitY

Architecture

- ▶ Eberhardt Rechtin's definition of system architecture states –
“A system is defined as a set of different elements so connected or related as to perform a unique function not performable by the elements alone.”
- ▶ The 'architecture' is “what it is a top-down description of the structure of the system. The whole is greater than the sum of the parts, that is, the system has properties beyond those parts.”

Architecture Framework



Functional Architecture

- ▶ Thus Functional Architecture (FA) is defined as an architectural model which represents at a high level the software product's major functions from a usage perspective, and specifies the interactions of functions, internally between each other and externally with other products.

How to prepare

- Divide functionality into unambiguous modules following the principles of hiding information and separating concerns, with well-defined interfaces.
- Modules should be developed independently from one another as far as possible.
- Architecture should be independent of technical changes.
- Architecture should be independent of particular commercial products.
- Separating out modules that “produce data” from modules that “consume data”.
- Small number of simple integration patterns at different touch points such as front end, middleware and endpoints to increase performance, enhance reliability and modifiability.

Technical Architecture

- ▶ The technical architecture is broken down into
 - **Application Architecture.** Explains Presentation, Business and Data Access layer.
 - **Data Architecture.** *Defined* through schema which in turn defines the security of data. Different data architecture models have been considered to demonstrate how security and ease of data management varies for them.
 - **Technology Architecture.** Defines technology for all application layers. It is recommended that Organizations or governments develop form utilities, message routing engines, common services such as eAuthentication, ePayment, SMS etc. centrally and allow different units of organization or ministries to use them, build component based architecture and provide solution of an IT project.

Existing ICT Infrastructure

ICT Infrastructure

- ✓ SDC
- ✓ SWAN
- ✓ CSC

Interaction Services

- ✓ e-Forms
- ✓ State portal
- ✓ Service Publication and Discovery

Integration Services

- ✓ SSDG
- ✓ MSDG

Common Services

- ✓ Payment Module
- ✓ Administration Module
- ✓ Document Repository
- ✓ e-Praman (e-Authentication)
- ✓ Localisation

Objectives

- ▶ Delivery of Services and transactions
- ▶ Minimizing the Time to Give Benefits to Citizens
- ▶ Ensuring the optimal use of Infrastructure
- ▶ Attempting Rapid Replication
- ▶ Redesigning the Architecture

What is Integrated Framework

- ▶ Goal of any e-Governance Application should be Service & Transaction Orientation
- ▶ Integrated Framework is a set of Interventions required to achieve this goal
- ▶ The Framework touches upon the aspects relating to People, Process, Technology & Implementation Model
- ▶ Steps Include Sourcing of Applications, Selection of Implementing Agency, Phasing and Scheduling of Services and Data Digitization among others.

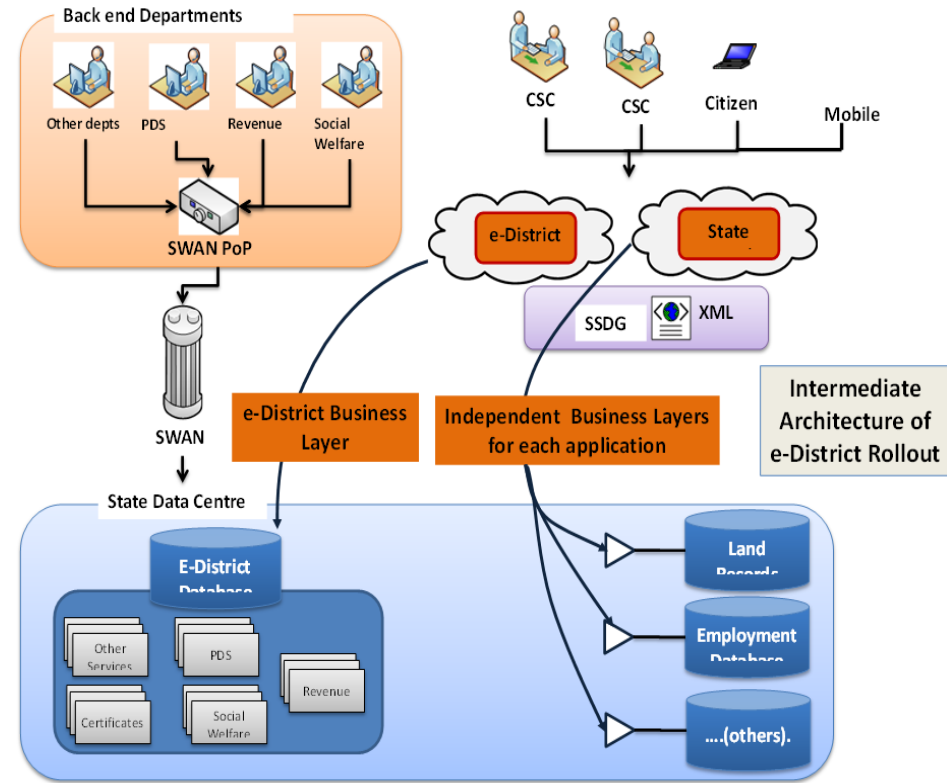
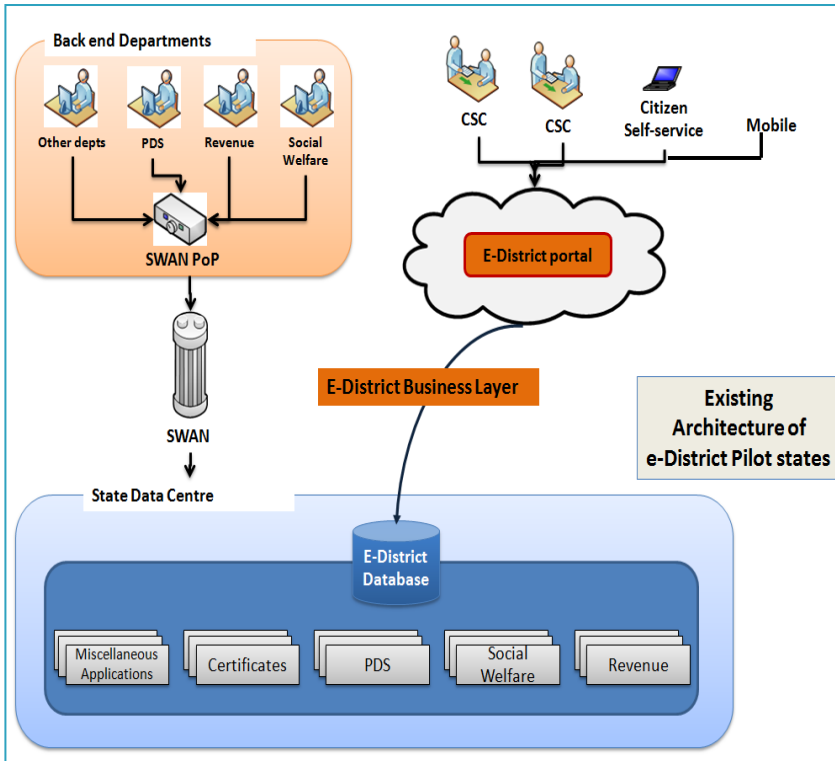
Application Architecture

- ▶ Current applications deliver services in a Silo
 - A dedicated portal with a backend available to limited departments
 - Tightly coupled Frontend and Backend with low configurability
 - Each application developing authentication and authorization logic
 - The Business layer logic is designed keeping in mind specific needs of a particular department
 - Data of all departments is kept in same database

Transformation Steps

- ▶ As an Intermediate Architecture
 - Extract the Presentation Layer and move the forms to State Portal for Citizen access
 - Existing applications will continue to use its business layer and database to provide end to end solution
 - New MMPs/Applications will be integrated with SSDG and these applications will have their own workflow and DB
 - Once new departmental applications emerge, data should be migrated from existing applications e.g. PDS data to be migrated from eDistrict to PDS MMP.

Redesigning Architecture



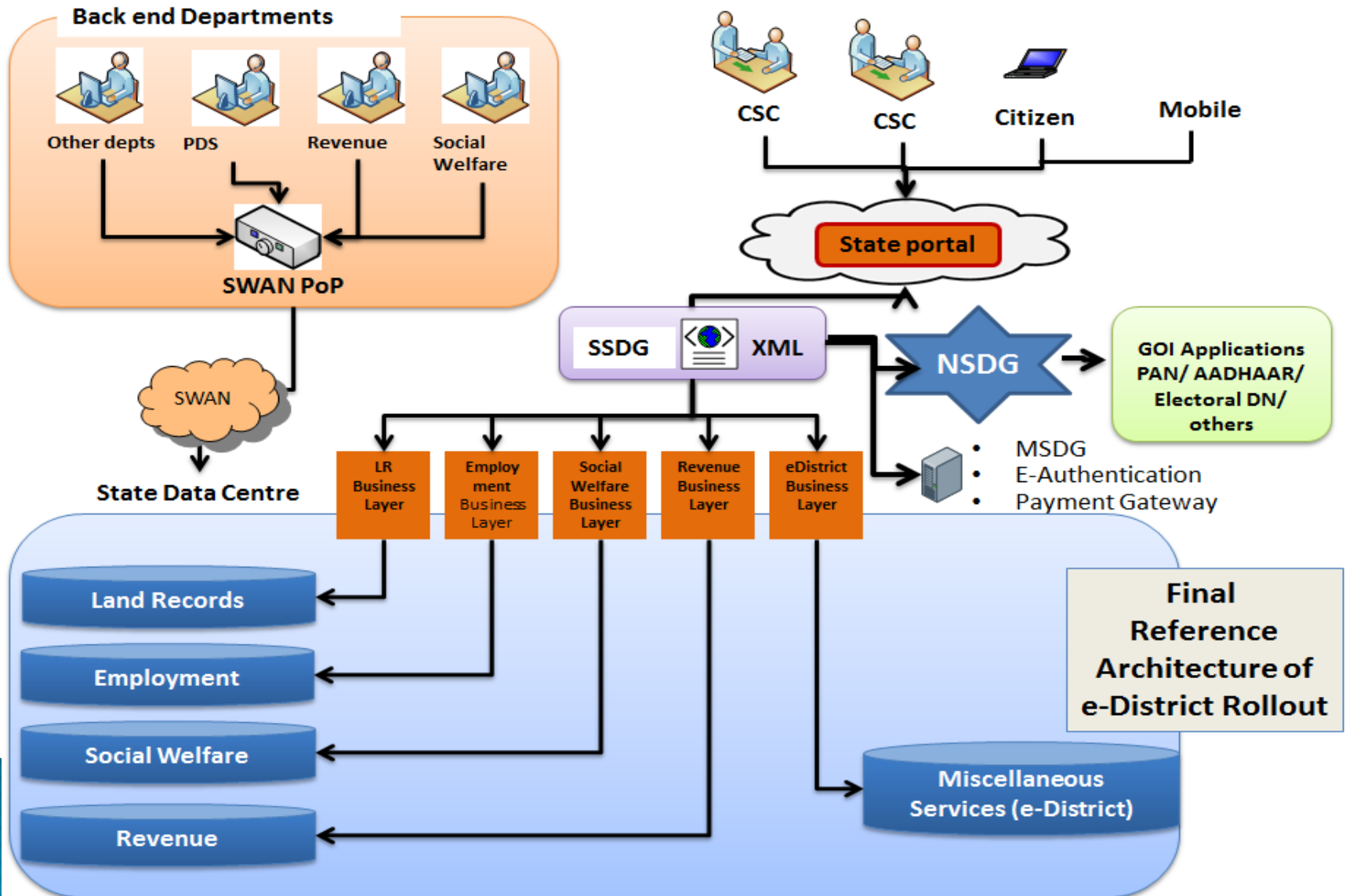
Move towards

Architecture - with Department specific databases

Final Architecture

- ▶ As a Final Architecture
 - All applications should be integrated with SSDG via SP & SAP connectors
 - All departmental applications will have their own separate database
 - Common activities such as e-Payment, citizen and user authentication should utilize central services
 - Design and build accounting module to keep track of transactions
 - Use of Digital signatures to ensure security and data integrity

Final Reference Architecture

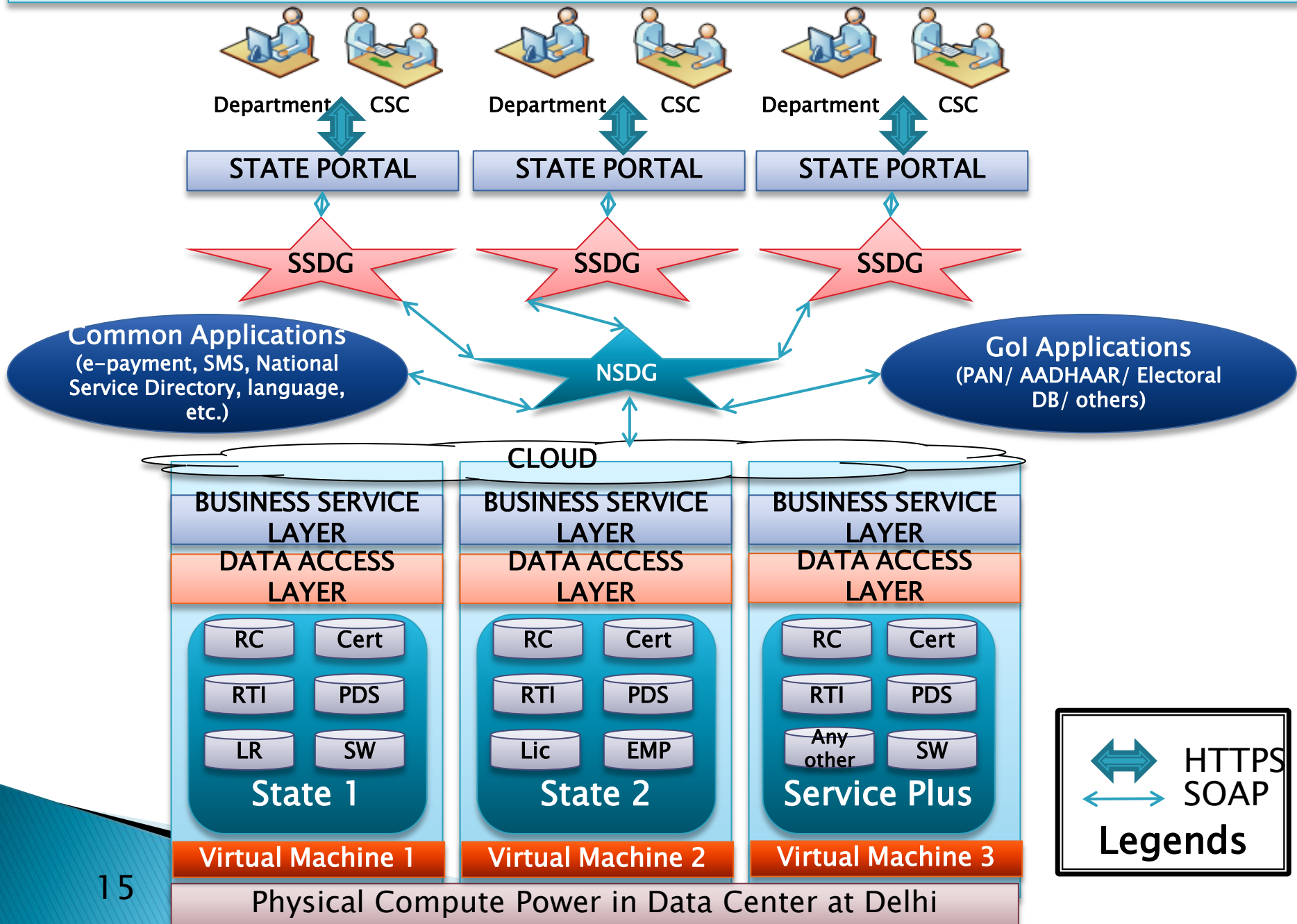


Cloud Architecture

▶ Long Term Vision

- To leverage advantage of cloud computing such as efficient use of ICT Infrastructure, elasticity, rapid scalability
- A single application can be used by various states to deliver similar services.
 - Single Database, Single Schema
 - State specific forms and workflow
- Multiple instances of an application suitable tailored for each state's requirements
 - Separate Database
 - Separate forms and workflow

Cloud Architecture: enabling Rapid Replication



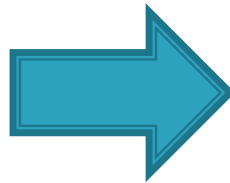
Securing ICT Infrastructure and Application Design

Risk Assessment

Threat Modeling

Sensitivity
Assessment of
Application Security

Assets Vulnerability



Remedies

STRIDE Model

E-SAFE Model

Identification of Critical
Assets and their
vulnerabilities

- Define Security Policy for Network Devices
- Articulate Security Policy for different types of servers
- Design Secure Applications using OWASP Top 10 Recommendations
- Use Cryptographic Algorithms of appropriate and latest Key Lengths
- Apply Principles of Data Privacy

E-Safe: Security Assessment Framework

- ▶ **Impact on Organization (Tangible)**
 - ❖ Cost of damaged assets
 - ❖ Cost of Recovery
 - ❖ Loss of revenue

- ▶ **Impact on Organization (Intangible)**
 - ❖ Loss/deterioration of functionality
 - ❖ Loss of image/reputation
 - ❖ Statutory/Legal/Contractual noncompliance

- ▶ **Impact on Individuals**
 - ❖ Financial loss
 - ❖ Intangible loss
 - ❖ Injury or Death

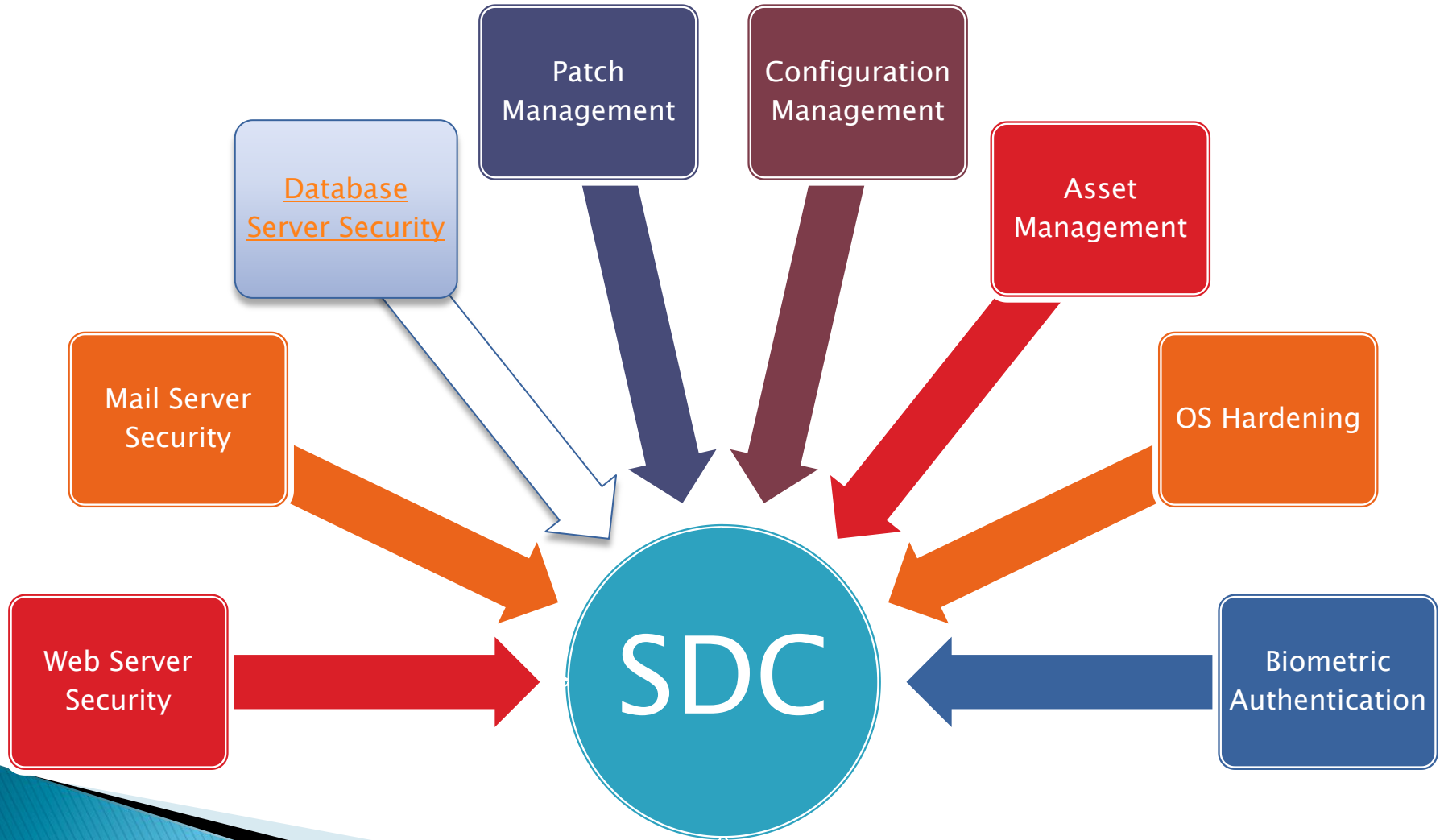
Security Sensitivity Assessment

Score	Rating	Ratings Impact	
0-4	L	L-L-L=L	L-L-M=M
5-7	M	M-M-M=M	M-M-H=H
8-10	H	H-H-H=H	L-M-H=H
Key to table	L:LOW	M:MEDIUM	H:HIGH

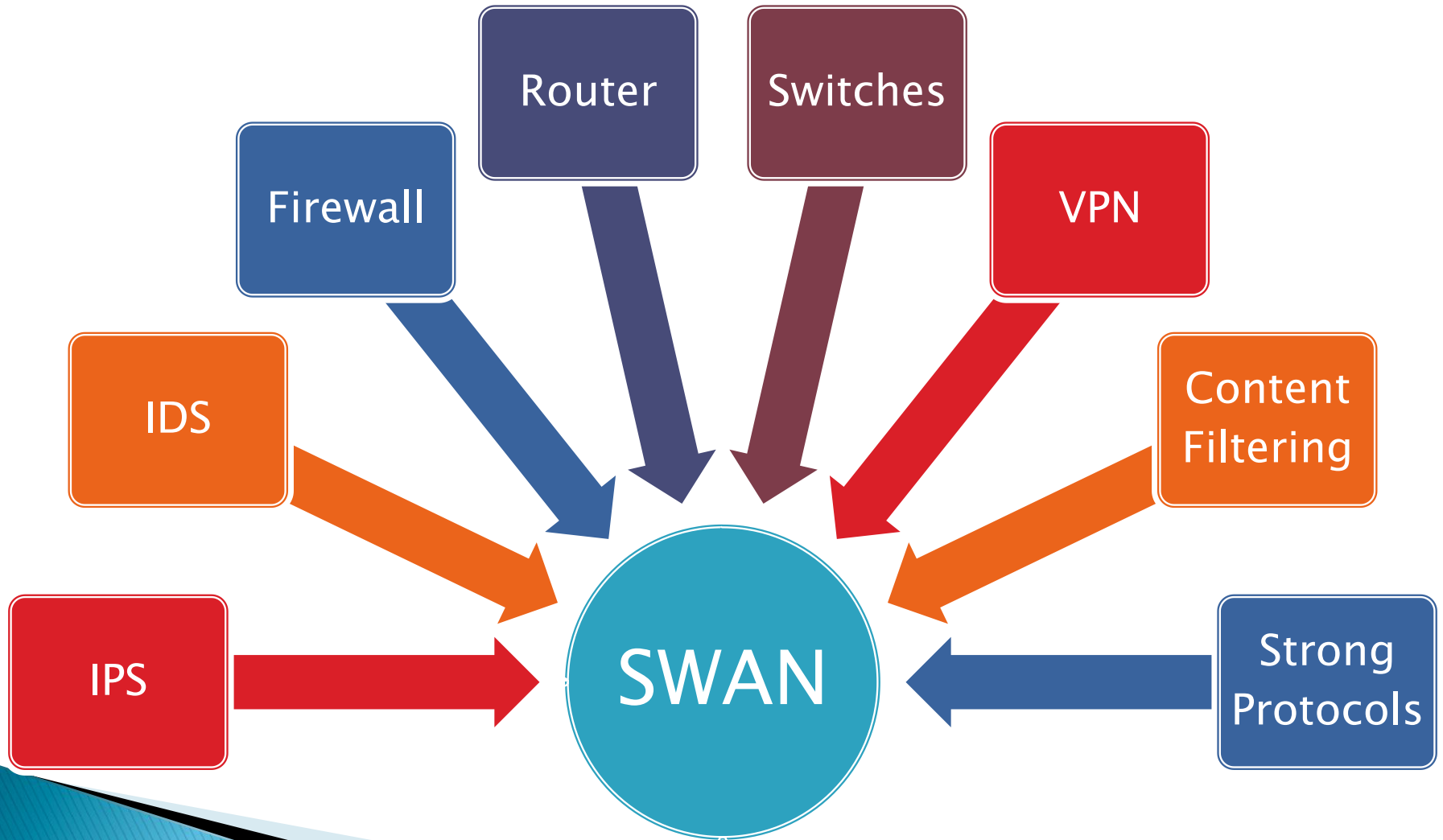
IMPACT ASSESSMENT FOR E-DISTRICT

Step 1: Impact on Organization (Tangible)	Cost of Damaged Assets	1
	Cost of recovery	1
	Loss of revenue	1
	Total	3
	Tangible Impact on organization	LOW
	Step 2: Impact on organization	Loss of functionality
	Loss of Reputation	3
	SLA Non conformance	3
	Total	9
	Impact on organization	HIGH
	Step 3: Impact on individual	Financial loss
	Intangible Loss	1
	Injury and death	0
	Total	2
	Impact on individual	LOW
Security Category for e-district Application	Low-High-Low	HIGH IMPACT

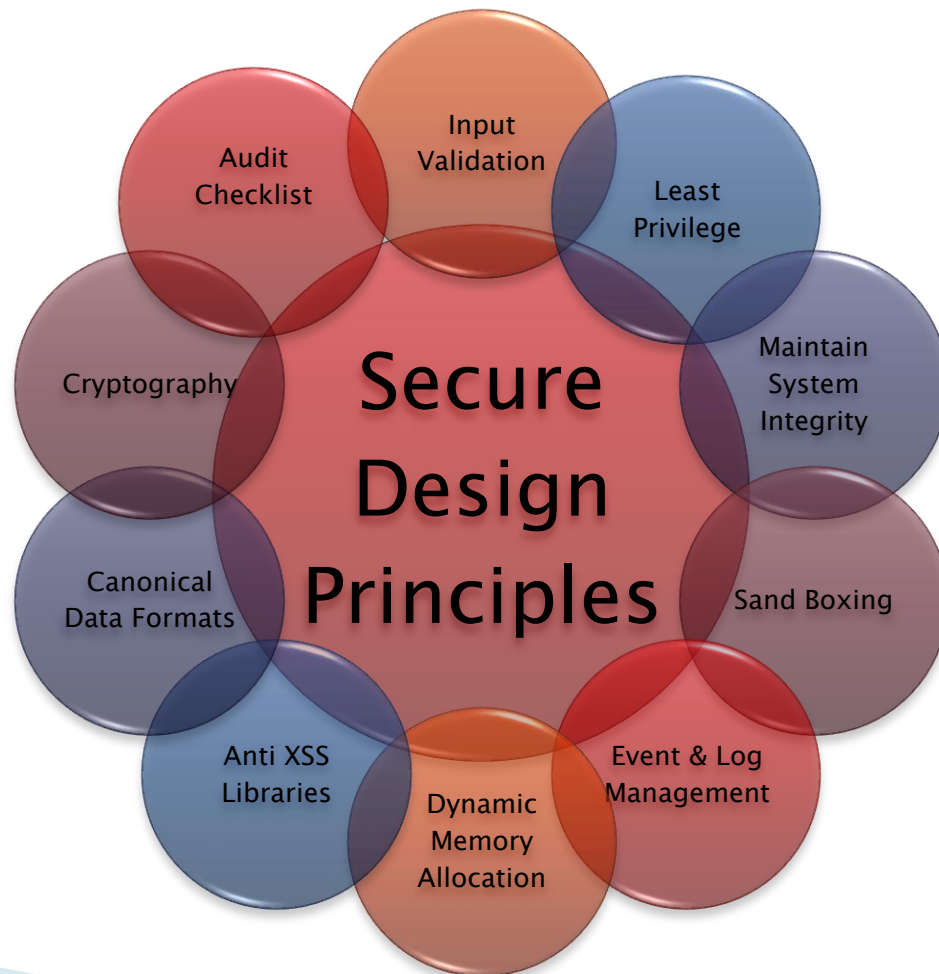
Communication & Operations Management



Communication & Operations Management (Contd)



Secure Application Design Principles



OWASP TOP 10 Vulnerabilities

1. **Un-validated input:** The input requests received for web applications need to be checked
2. **Broken access control:** Restrictions and privileges what the authenticated users can do should be defined
3. **Broken authentication and session management:** Account privileges and session tokens are not properly enforced, in such cases, attackers take control of passwords, session cookies and assume other users' identities.
4. **Cross site scripting (XSS) flaws:** Such an attack can lead to compromise of session token, attack the local machine or spoof contents to fool the user.
5. **Buffer Overflows:** The web applications which do not validate input can get crashed, the specific web components, which can get crashed include CGI, libraries, drivers and server components of web application.
6. **Injection flaws:** If an attacker embeds malicious commands in SQL parameters, the external system such as RDBMS will execute these commands on behalf of web application
7. **Improper error handling:** It can result in divulging detailed system information to the attackers.
8. **Insecure storage:** Generally, cryptographic functions and user code are not integrated properly, resulting in disclosure of keys and weak protection.
9. **Denial of service (DoS):** Attackers by sending fictitious requests consume Web application resources to such an extent where other legitimate users can no longer access or use the application.
10. **Insecure configuration management:** Default configurations are generally prone to security risks so they must be changed.

Sql Injection Attack

```
SqlDataAdapter my_query = new  
SqlDataAdapter ("SELECT * FROM  
accounts WHERE acc_user='" + user + "'  
AND acc_password='" + password +  
"',the_connection);
```



```
SqlDataAdapter my_query = new SqlDataAdapter(  
"SELECT * FROM accounts WHERE acc_user=  
@user AND  
acc_password=@pass", the_connection);  
SqlParameter userParam =  
my_query.SelectCommand.Parameters.Add(  
"@user", SqlDbType.VarChar,20);  
userParam.Value=user;  
SqlParameter passwordParam =  
my_query.SelectCommand.Parameters.Add(  
"@pass", SqlDbType.VarChar,20);  
passwordParam.Value=password;
```

By choosing the input field “user” to be
' OR 1=1—

The attacker can get access to all records of
table accounts.

```
SELECT * FROM accounts WHERE acc_user="'  
OR 1=1—
```

This ensures that the apostrophe character is
properly escaped, and will not jeopardize the
application or the SQL database. At the same
time, the
apostrophe will not be blocked, which is an
upside of this approach

Success Criteria

Districts Population	No. of Transactions For all 25 Services (Per Month Per Service) for 3 consecutive months	No. of Transactions for 10 Services attain High Volume Per Month Per Service for 3 consecutive Months	Total No. of Transactions for all 25 Services (Per Month)
Less than 5 Lakhs	10	50	750
Between 5 & 10 Lakhs	20	100	1500
More than 10 Lakhs	30	150	2500

Note:

- At least 3 High Volume Services are amenable for delivery Across the Counter
- Service means submission of application by citizens, back end processing and service delivery

Thank You