

SECTION B

SCADA MASTER PLANNING

SCADA Master Planning

- Establish your vision, strategies and goals for effective, system-wide operations control;
- Maximize business and operational benefits and your investment in SCADA.
- Identify and prioritize business, operational and technical requirements;
- Understand how service level objectives impact control;
- Establish a coordinated, prioritized program to meet operational goals;
- Define specific, short-term and long-term projects including costs, resource commitment, schedules and dependencies in order to deliver projects on time and within budget.
- Identify immediate concerns and high-impact projects;
- Define and identify policies, procedures, organization, technologies and a controlled means of managing change; and
- Establish buy-in among stakeholders and executive sponsors.
- The end-result is a Proactive plan that will lower business risk, optimize operational performance, and provide access to operational data required for effective business decisions.

Role of SCADA in Utility Operations

Critical Need	Role of SCADA/Control
Meet Regulatory Compliance	<ul style="list-style-type: none">• Monitor and report regulatory compliance• Control process within regulatory constraints
Protect Public Health and Safety	<ul style="list-style-type: none">• Early detection and warning of process upsets• Prevent processes and equipment from reaching dangerous levels of operation
Maintain Service Levels	<ul style="list-style-type: none">• Operational flexibility and tight control• Staffing levels and experience
Operate Efficiently	<ul style="list-style-type: none">• Unattended operations• Process optimization
Capture and Retain Knowledge	<ul style="list-style-type: none">• Historian maintains operational history• Operational experience captured in control strategies and narratives
Plan Capital Improvements	<ul style="list-style-type: none">• Equipment condition and performance data• Data to calibrate the hydraulic model

What is a SCADA Master Plan?

Proactive plan to manage one of the Utility's most critical assets to:

- Align SCADA technology and governance with business requirements
- Plan for the required budget, time and resources
- Set priorities, schedules and interdependencies of projects



SCADA MASTER PLAN

Technical

- Frequent and sustained system downtime
- Lack of support and maintenance for obsolete hardware and software
- Accessing historical data for regulatory and operational reporting requires a SCADA specialist
- Number of nuisance alarms and alarm floods
- Minor system/component upgrades cause failures in other components
- Uncertainty about which automation platform/vendor fits requirements

Business

- Pending retirement of experienced operating or maintenance staff
- New regulations or business requirements
- High costs for maintenance and support
- Inaccurate or non-existent documentation
- Significant system expansion
- Staff are too hard-pressed meeting the needs of operational support and capital delivery to do effective planning

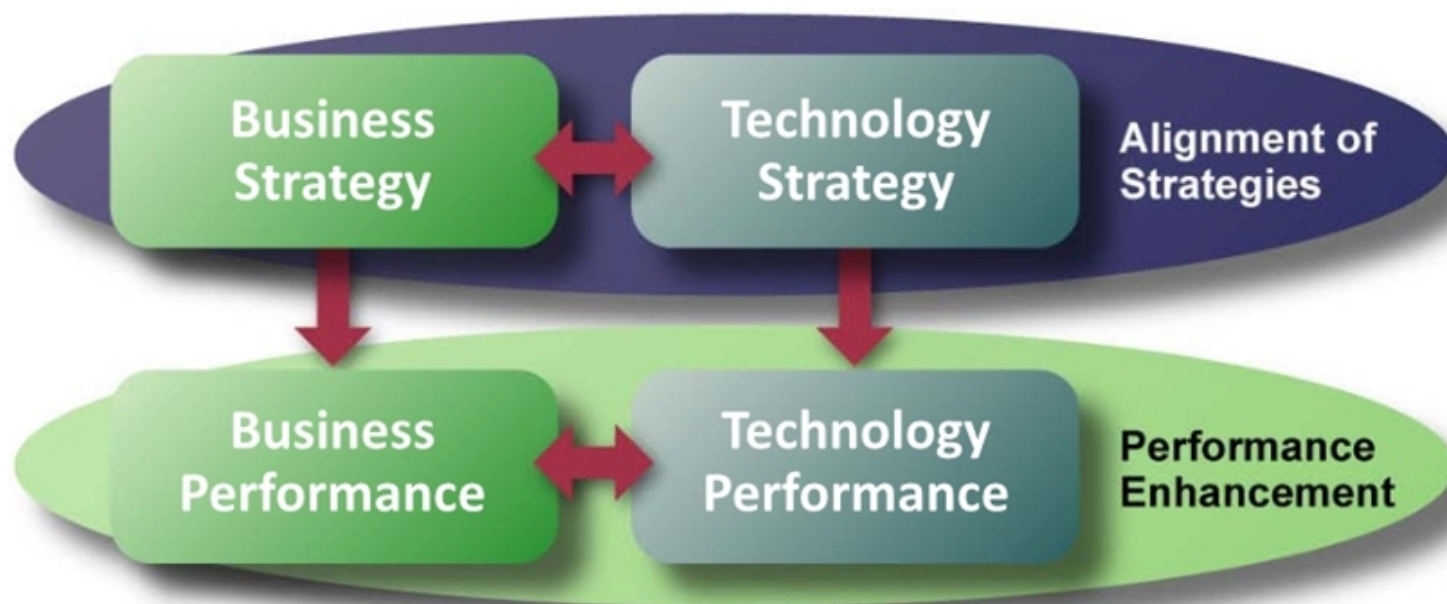
Procedure

- Difficulty in defining, prioritizing and justifying SCADA projects
- Lack of change management, revision control and back-up procedures put the Utility's continuity of operations at risk
- SCADA standards do not exist or not enforced resulting in significant variability

What are your challenges?

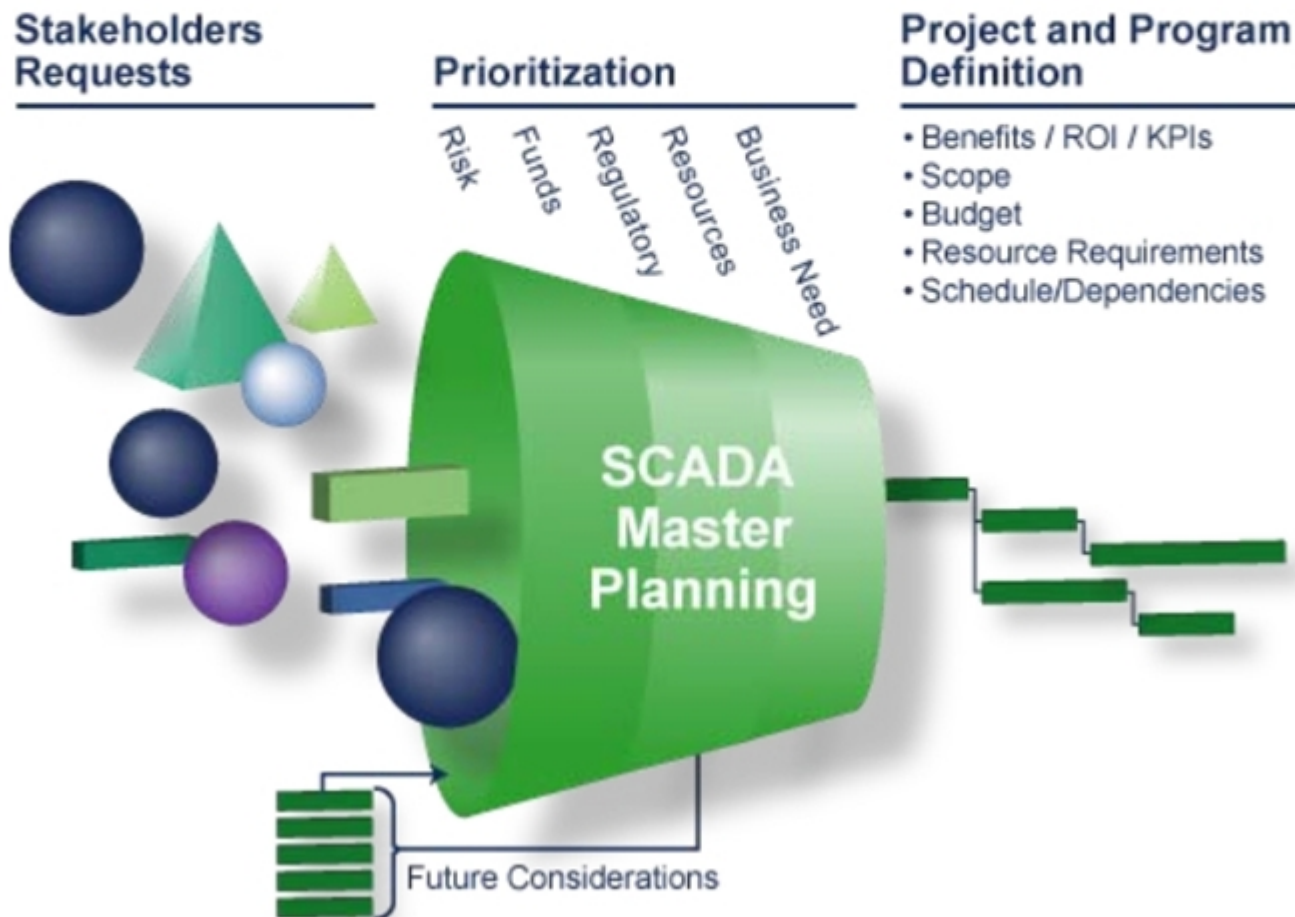
PLANNING OF SCADA

A proactive plan aligns SCADA technology and governance with the business requirements of the Utility.

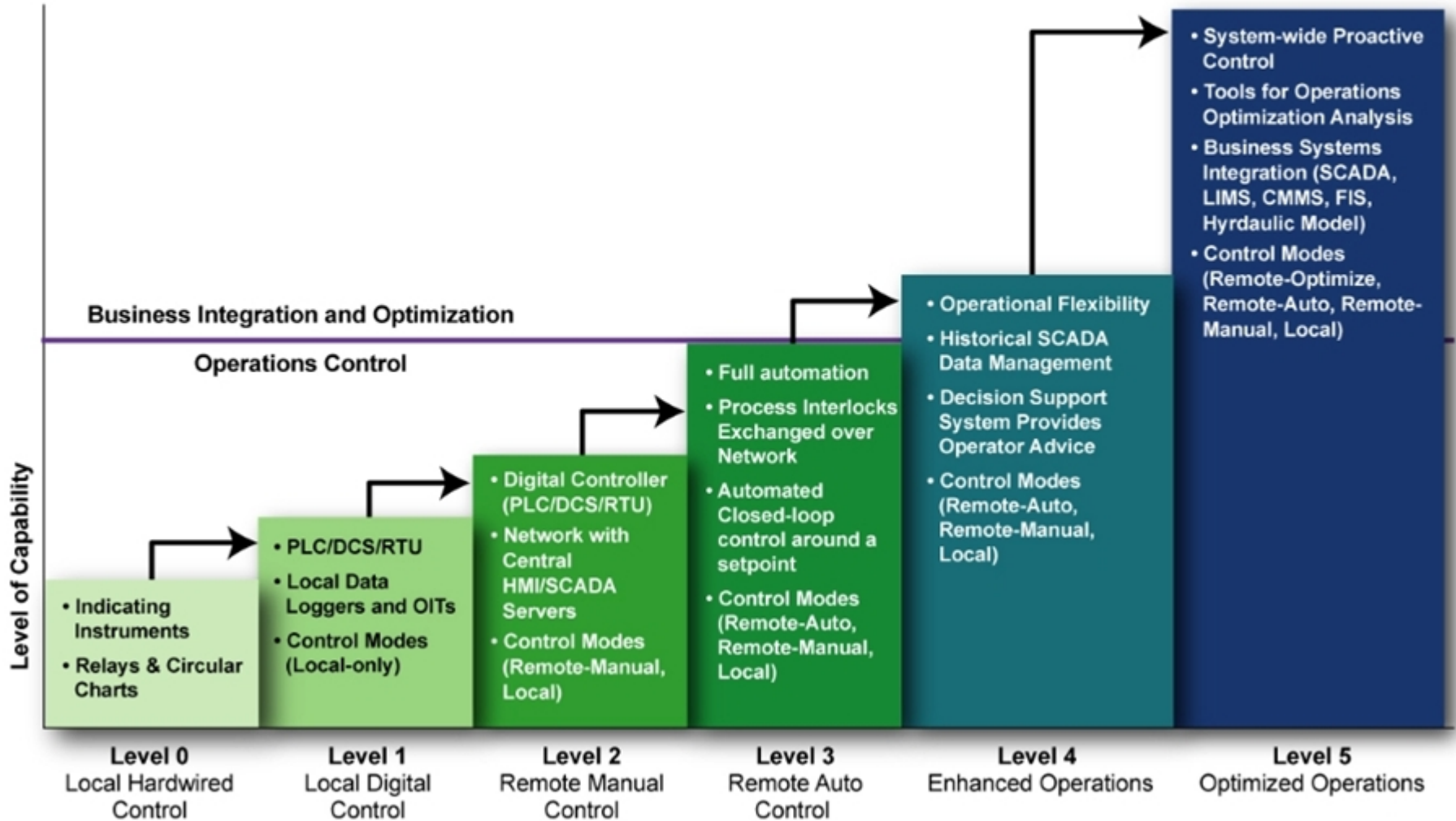


Bringing Order to Chaos

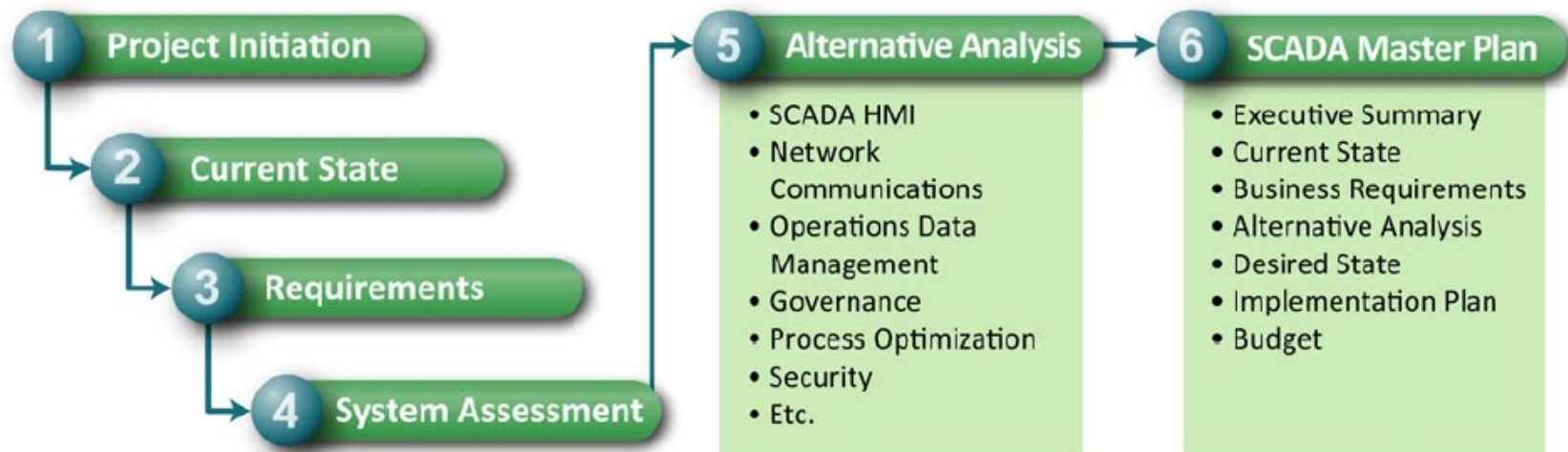
A logically sequenced, SCADA program meets business needs within the resource constraints of the Utility.



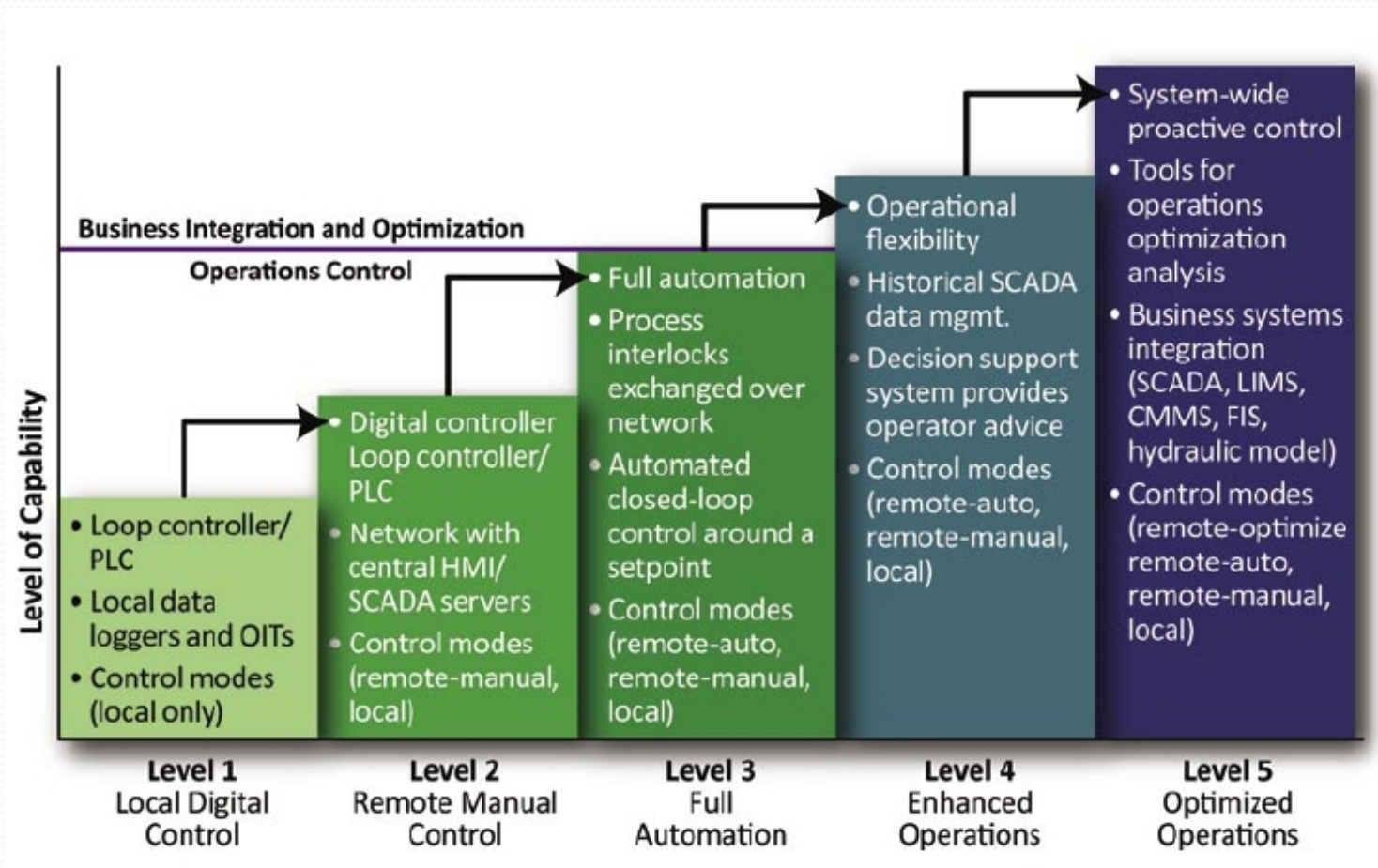
What is the Utility's Vision for SCADA?



PLANNING STEPS



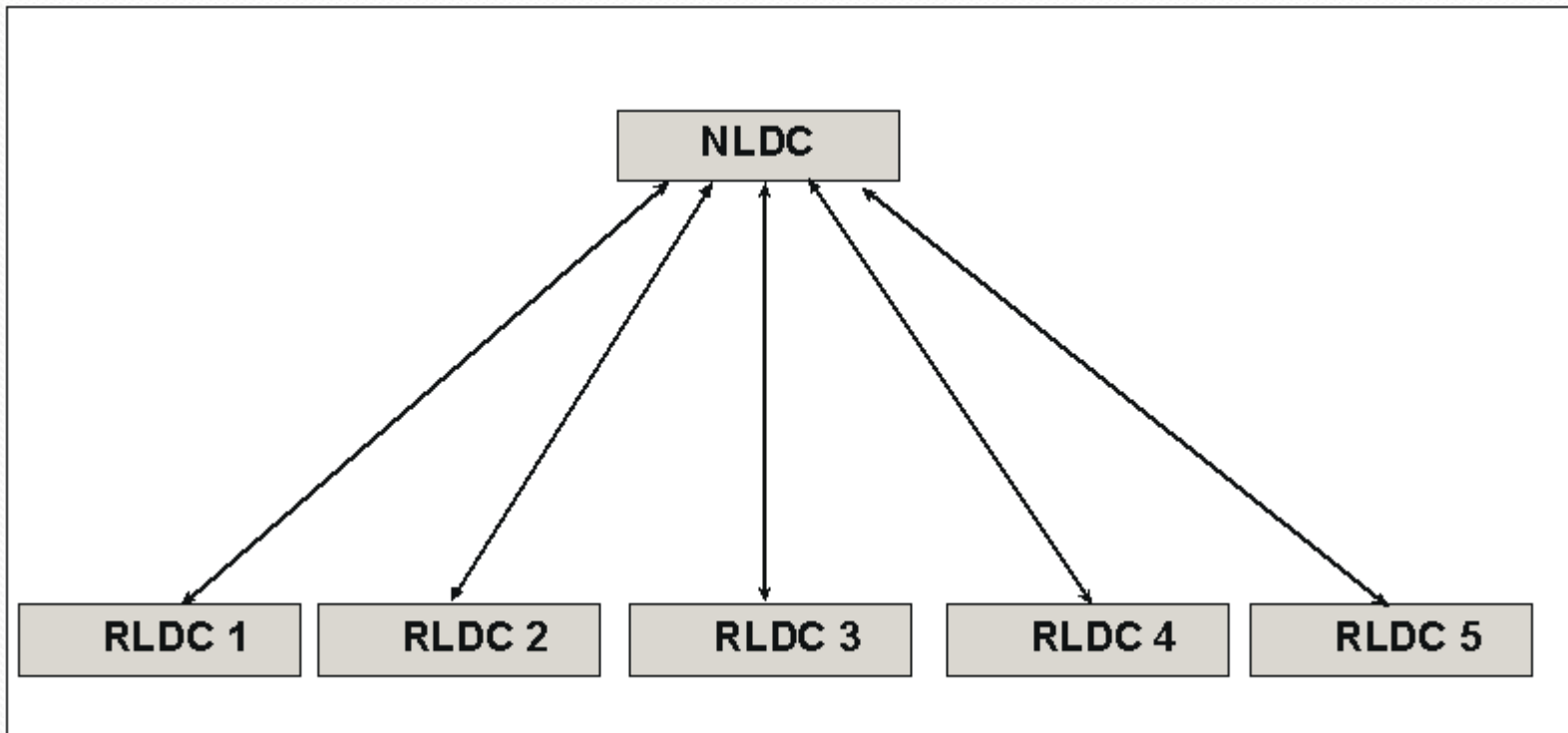
OPERATIONS PERFORMED BY SCADA



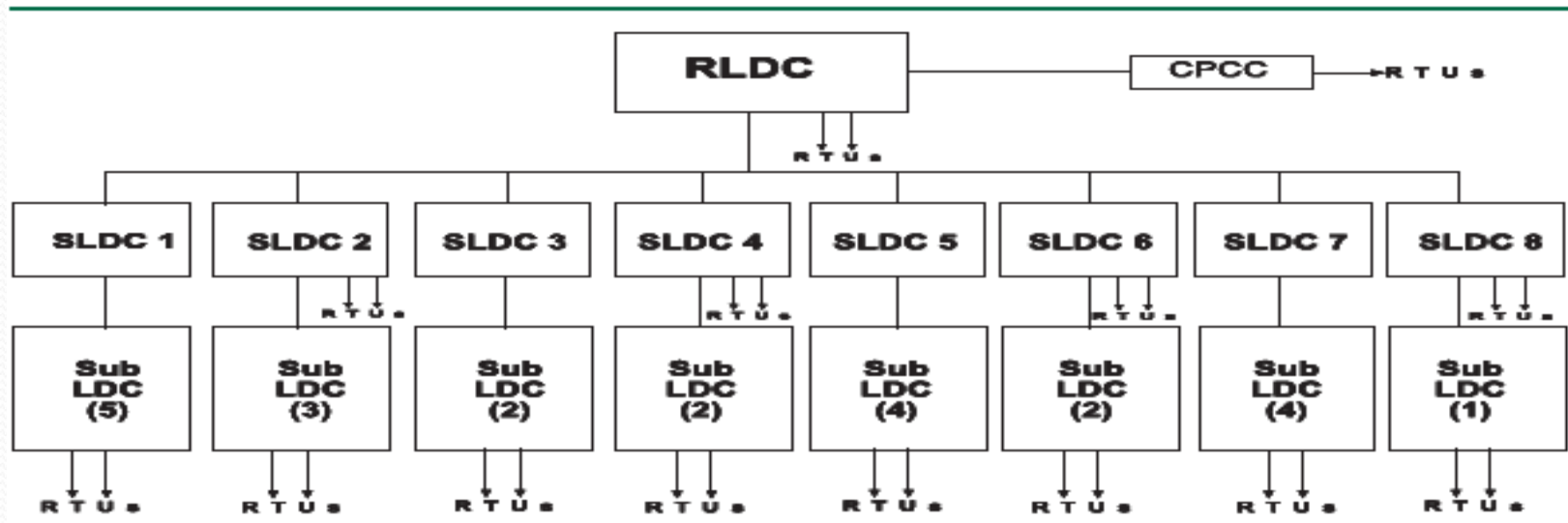
SCADA System Hierarchical Structure

- SCADA system is hierarchical in nature having two distinct hierarchies - one at national level other at regional level.
- At national level, SCADA/EMS system of all five RLDCs report to NLDC.
- Data from each RLDC is transmitted to NLDC in real time on dedicated communication lines.

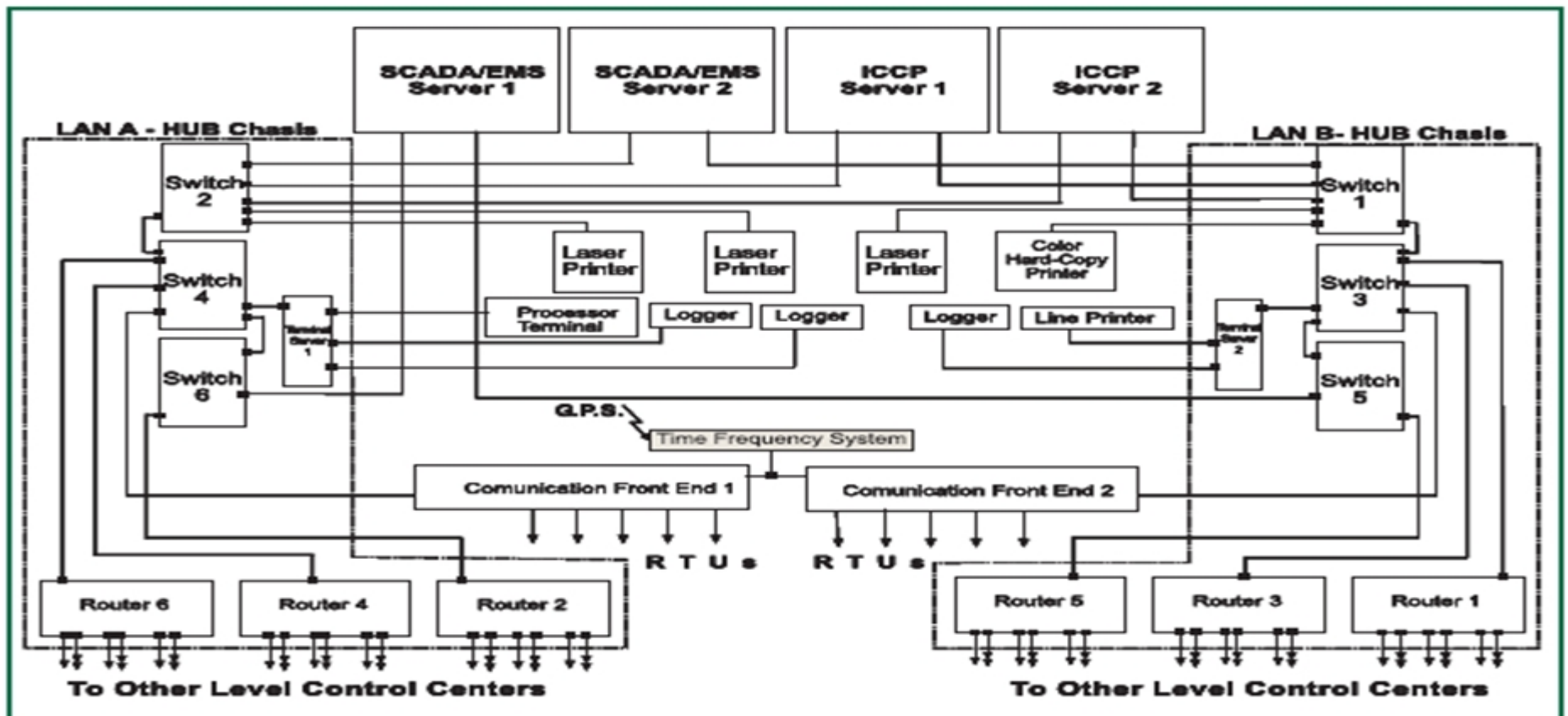
National level hierarchical arrangement



HIERARCHY AT RLDC LEVEL



CONFIGURATION OF A RLDC AND SLDC



CONFIGURATION OF SUB-LDC AND CPCC

