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APNIC 61

From Network Engineer to Strategic Leader

Terry Sweetser
Principal Consultant
The Internet Engineering & Infrastructure Strategic Initiative
contact@ieisi.org
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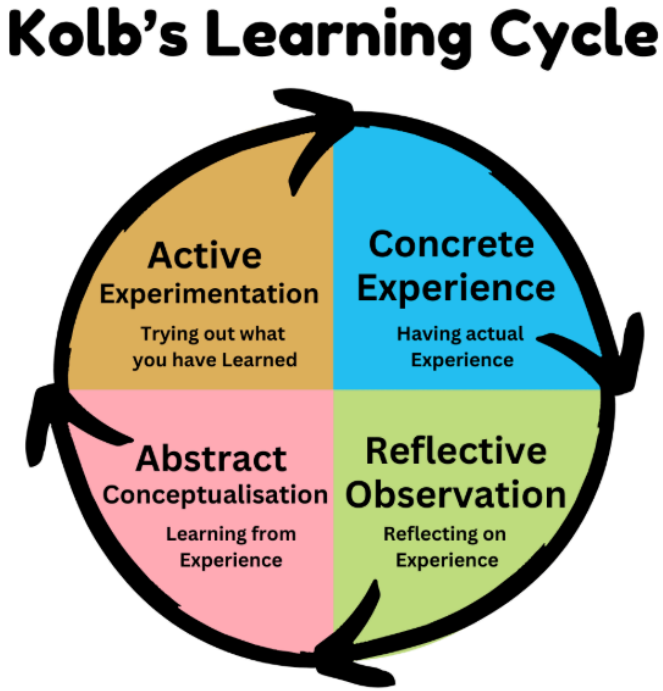
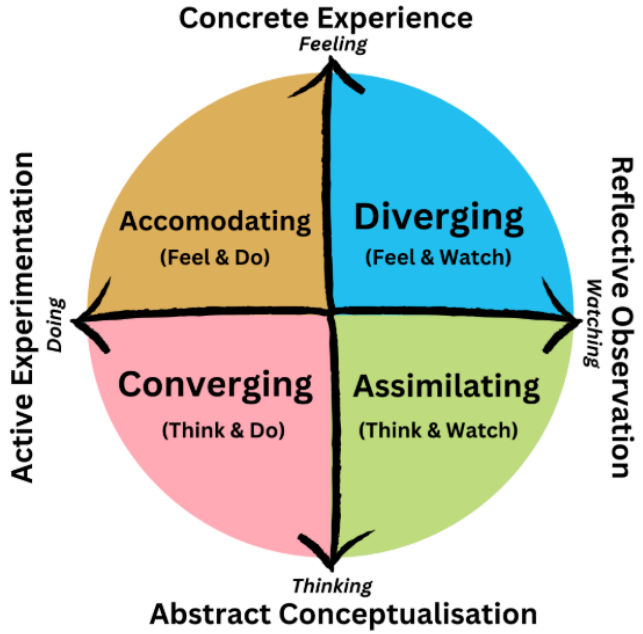
Experiential Learning Theory





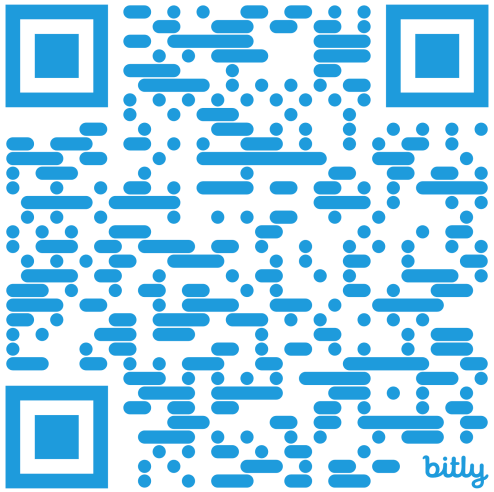
Reference:

[David Kolb's Learning Styles and Experiential Learning Cycle]

Terry's 3Rs Framework

1. Reliability: the quality of management factor.
2. Relevance: knowing what matters to you, your team and the business.
3. Reject: preserving a productive and constructive culture.

From Network Engineering to CTO: What You Need to Construct to Get There



The Thesis: The Right Mindset

Don't abandon your engineering mindset -- amplify it.

An organization is just a complex, distributed system.

Leadership is not magic; it is **Systems Architecture**.

The Engineering Analogy

- **Strategy** = Network Topology Design **OR** Strategy as code: IF THEN ELSE
- **Operations** = Traffic Engineering, QoS, Break-Fix, Solving Problems
- **Culture** = Security Protocols, Firewalls, TRUST + INTEGRITY + CARE

> **Reflective Prompt:**
> "If your team was a network, where is the packet loss occurring right now?"

Reliability: The Foundation (The 3Rs)

Trust is the physical infrastructure. Without it, the link is down. Reliability is defined by the Mayer Model: **Ability** (Competence), **Integrity** (Consistency), and **Benevolence** (Care).

Analogy: The Leadership SLA

- **Integrity:** When a router advertises a route but drops the packet.
- **Benevolence:** Does the system care about the health of the nodes?
- **Result:** Low Trust = High Latency (people double-check everything you say).

> **Reflective Prompt:**
> "What is the **uptime** of your word? Do you meet the SLA you implicitly promised your team?"

Relevance: Routing the Traffic (The 3Rs)

Effort must flow toward business value. The "Balanced Scorecard" approach ensures everyone knows the destination.

Analogy: Routing Tables & BGP

- A network without a routing protocol is just noise.
- A team without clear goals creates "broadcast storms" of busy work.
- You are the **BGP Peer**: You must advertise the correct prefixes (Goals) so your team routes their energy efficiently.

> **Reflective Prompt:**
> "If I asked your newest hire *'Why is your current task important to the business?'*, could they answer?"

Reject: The Cultural Firewall (The 3Rs)

The "Cultural Immune System." You must actively reject toxic behaviors (information hoarding, blame, silos) to maintain system integrity.

Analogy: Default Deny / ACLs

- You cannot allow malicious traffic (toxicity) to traverse your network just because the source is a "High Performer" (High Bandwidth).
- **Action:** You must courageously "drop" packets that threaten system stability.

> **Reflective Prompt:**
> "What toxic behavior (packet) are you currently allowing through your firewall because it’s coming from a 'high bandwidth' source?"

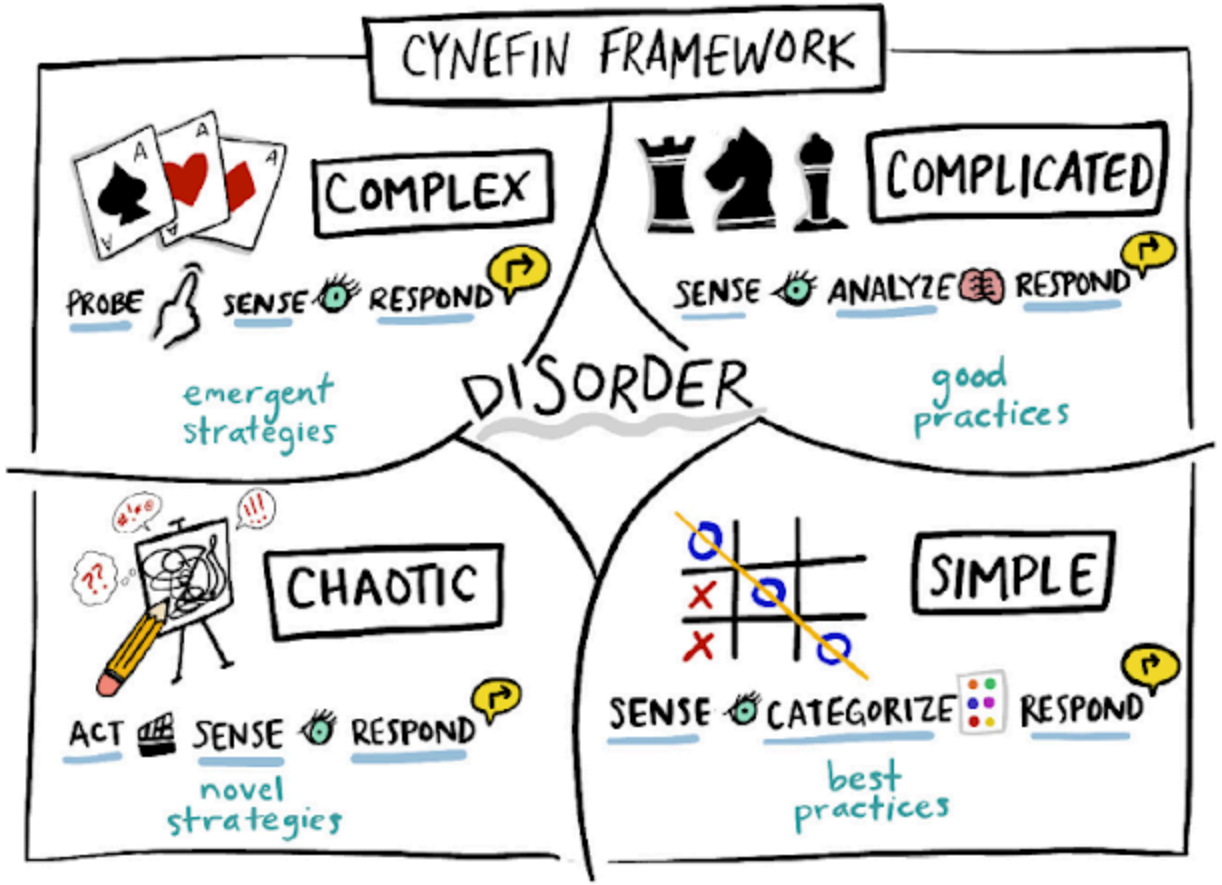
Decision Architecture: Distributed Processing

Scalability requires delegation. If every decision goes to the CTO, the CPU spikes to 100% and the system halts.

Analogy: Edge Computing

- **Edge Nodes (Team):** Handle local traffic (Standard Decisions).
- **Core Router (You):** Handle exceptions and complex routing.
- **Cynefin:** Use Simple/Complicated routing for the edge; keep Complex/Chaotic routing for the core.

> **Reflective Prompt:**
> "What decision are you currently holding in the **Core** that could be processed at the **Edge**?"


CYNEFIN FRAMEWORK
COMPLEX
PROBE
SENSE
RESPOND
emergent strategies
COMPLICATED
SENSE
ANALYZE
RESPOND
good practices
DISORDER
CHAOTIC
ACT
SENSE
RESPOND
novel strategies
SIMPLE
SENSE
CATEGORIZE
RESPOND
best practices

The Coaching Cascade: Org Topology

Value creation shifts as you move up the stack.

Do not commit a **Layer Violation** by doing work below your protocol level.

- **L1: Individual Contributors** (Data Plane)
  - *Function:* They process the packets (Do the work).
- **L2: Managers** (Control Plane)
  - *Function:* They organize and coach the doers (Optimize flow).
- **L3: Executives** (Management Plane)
  - *Function:* They coach the managers (Node health).
- **L4: Senior Executives** (Architecture)
  - *Function:* Teach mental models & frameworks (System Design).

> **Reflective Prompt:**
> "Are you operating at the correct layer, or are you performing **Deep Packet Inspection** on your team's work?"

Incident Management

Debugging Human Systems

IM 1: Mode Switching (Peace vs. War)

Every well-designed system needs failover protocols. **Peace Time** is for consensus. **War Time** is for command.

Analogy: OSPF Convergence

- **Normal Ops:** Optimize for the lowest cost path (Efficiency/Consensus).
- **Link Failure:** Priority shifts to **Convergence Speed**.
- We suspend "optimization" until stability is restored.

> **Reflective Prompt:**
> "Does your team have a clear signal for when 'Democracy' is suspended and 'Command Mode' is activated? How long does that **convergence** take?"

IM 2: The Root Bridge Election (Roles)

Authority ≠ Expertise. In a crisis, the person with the most domain knowledge regarding the *specific failure* is the Incident Commander.

Analogy: Root Bridge Election

- The network automatically elects the best path to the root.
- **The Rule:** If you are paralyzed in analysis, you are not the IC. Hand it over.
- **Exec Role:** You are the **Backup Link**. Provide "Air Cover" (Board/PR) so the Root Bridge (Expert) can route traffic.

> **Reflective Prompt:**
> "Can you put your ego aside to admit *'I am not the right person to fix this,'* and instead serve as the **firewall** protecting the person who is?"

IM 3: Debugging the Human System (RCA)

You cannot patch a bug you cannot see. If your culture punishes people for causing outages, they will hide the logs.

Analogy: Syslog & SNMP

- Imagine if your router deleted its own error logs because it was afraid you would yell at it.
- A culture of blame is `logging level none`.
- You need `logging level debug` enabled by **Psychological Safety**.

> **Reflective Prompt:**
> "When a junior engineer breaks production, is their first instinct to hide the evidence or broadcast the error? What does that tell you about your **Culture**?"

Conclusion: The Integrated System

The transition from Engineer to CTO is the transition from **doing** to **designing**.

Reliability: Build the physical layer (Trust).
Relevance: Configure the protocols (Strategy).
Reject: Secure the perimeter (Culture).
Architecture: Distribute the load (Delegation).

Stop trying to be the Super-Router.

Start being the Systems Architect.