Milestone 2: Network Requirements Analysis & Data Gathering Design

By the end of this milestone, you should be able to:

- Translate your chosen organization/problem into quantifiable network requirements
- Identify data sources and stakeholders
- Design data gathering instruments aligned with your research question
- Prepare for evidence-based network design and analysis

Part 1: Define Network Requirements (FACT BASED)

You are required to profile the current or target network environment of your chosen organization.

A. Core Requirements to Gather

1. User Base

- Total number of users
- Concurrent users (peak vs average)
- User types:
- Employees
- Guests
- Remote workers
- Third-party/vendors

2. Endpoints / Devices

- Number of endpoints:
- Workstations
- Laptops
- Mobile devices
- Servers
- IoT devices (CCTV, sensors, etc.)
- Ownership model:
- Corporate-owned vs BYOD

3. Applications & Services

- Critical applications:
- ERP, CRM, Email, Cloud apps, etc.
- Hosting model:
- On-premise
- Cloud (AWS, Azure, GCP)

- Hybrid
- Sensitivity classification:
- Public / Internal / Confidential / Regulated (e.g., PCI, banking)

4. Bandwidth & Traffic Profile

- Current ISP bandwidth (Mbps/Gbps)
- Peak utilization times
- Type of traffic:
- Video conferencing
- File transfers
- Web traffic
- Real-time systems

5. Network Architecture (Current State)

- LAN structure (flat vs segmented)
- WAN connectivity:
- MPLS / SD-WAN / VPN
- Internet breakout:
- Centralized vs distributed

6. Security Requirements

- Existing controls:
- Firewall, IDS/IPS, VPN
- Compliance requirements:
- ISO 27001, NIST, BSP, PCI-DSS
- Known risks/issues:
- Downtime
- Breaches
- Performance issues

7. Scalability & Growth

Expected growth in:

- Users
- Branches
- Applications
- Expansion plans (next 1–3 years)

Output for Part 1

You must submit a Network Requirements Summary Table, for example:

Category	Current State	Notes / Risks
Users	120 employees, 30 concurrent remote	Remote VPN unstable
Endpoints	180 devices	No asset inventory
Bandwidth	200 Mbps	Congested during peak
Applications	Cloud-based CRM, on-prem ERP	Hybrid complexity

Part 2: Design Data Gathering Instruments

You are now required to design HOW you will collect the above data.

A. Interviews (Qualitative – Strategic Insights)

- Target Respondents:
- IT Manager / Network Admin
- Business Unit Head
- Security Officer (if available)

Sample Questions:

- What are the biggest network-related challenges today?
- When do you experience slowdowns or downtime?
- What applications are most critical to operations?
- Are there security or compliance requirements driving decisions?

B. Surveys (Quantitative – User Experience)

Target Respondents:

- Employees / End users

Sample Questions:

- How often do you experience slow internet/network issues?
- Which applications do you use most frequently?
- Do you work remotely? If yes, how is your experience?
- Rate network reliability (1–5)

C. Network Testing / Technical Validation

If possible (or simulated):

- Speed tests (download/upload/latency)
- Ping and traceroute

- Basic port scanning (if allowed)
- Wi-Fi signal strength mapping

D. Document & Artifact Review

Request or simulate:

- Network diagrams
- Asset inventory
- ISP contracts / bandwidth allocation
- Security policies

Output for Part 2

You must submit:

1. Interview Guide (minimum 5–8 questions)

2. Survey Questionnaire (minimum 5–10 questions)

3. Technical Data Plan (what tests/tools you will use)

Part 3: Mapping Data to Your Research Question

You must clearly show:

- How your data gathering supports your research objective

Example:

Research Question	**Required Data**	**Data Source**
Is the network scalable?	User growth, bandwidth	Interview + docs
Are there bottlenecks?	Traffic patterns	Network tests
Is segmentation needed?	Current architecture	Diagram review