Network System Design for Diabetes Management and Security Evaluation

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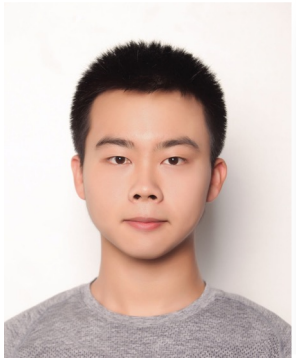

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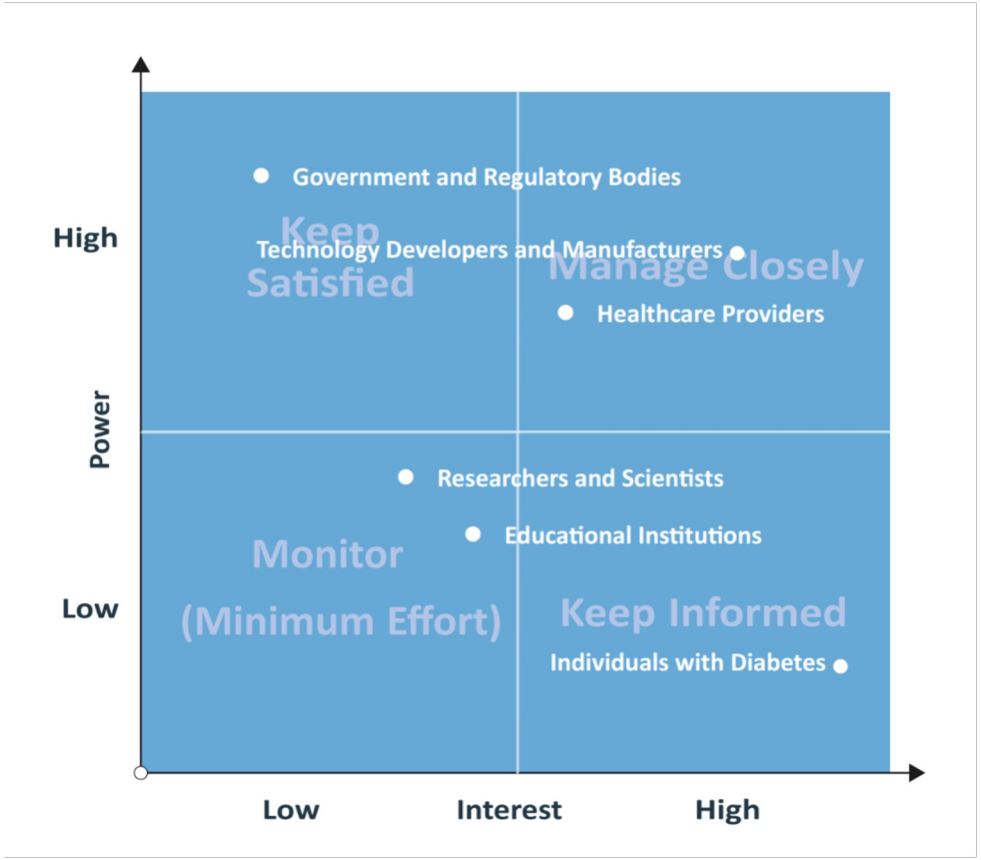
1 Introduction

- Diabetes problem
- How to design our network system
- Enhance network design
- Mobile app
- Data transfer

2 Stakeholders and User Stories



Individuals

Access the affordable and scalable monitoring system

Educational Institution

Develop an integrated network system

Healthcare Provider

Continuous monitoring of diabetes and reliable network

Access Layer

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Distribution Layer

↓

Core Layer

↓

Data center

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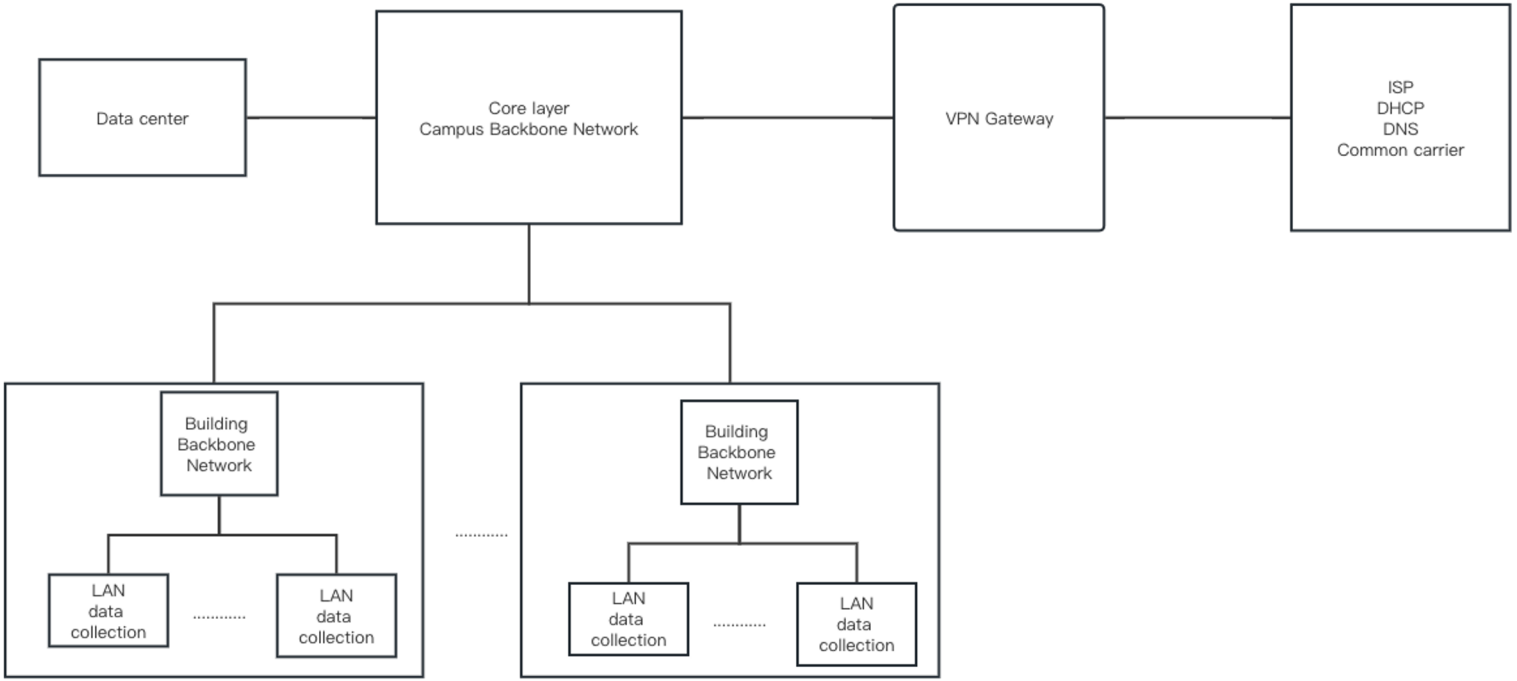
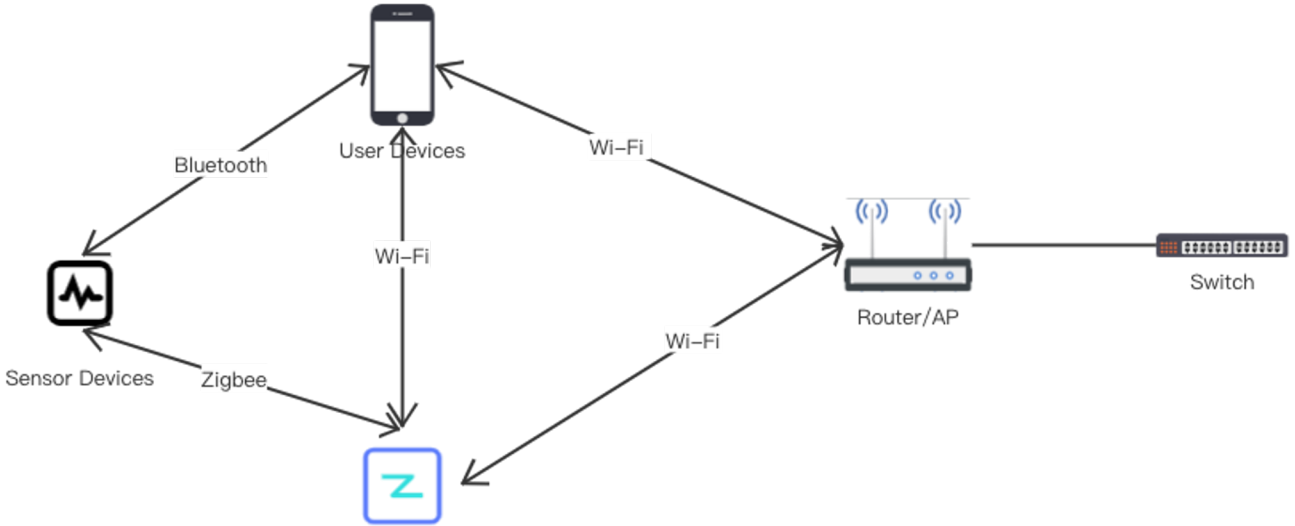
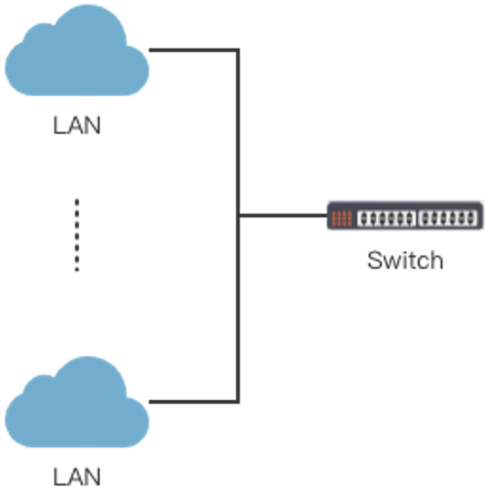
3 Network System Architecture



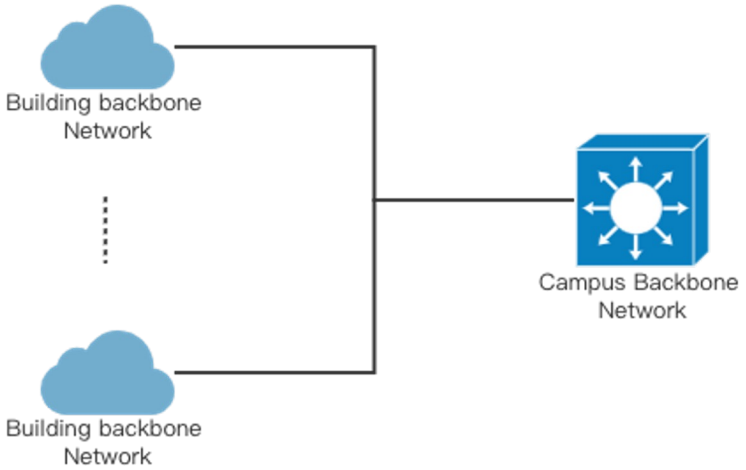
3.1 LAN architecture



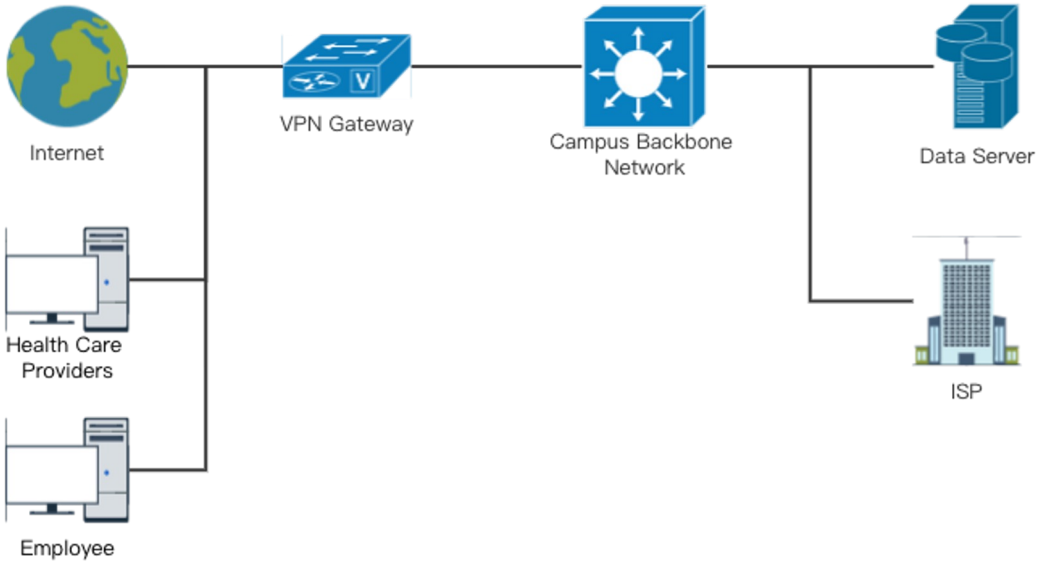
3.2 Building Backbone Network



3.3 Campus Backbone Network



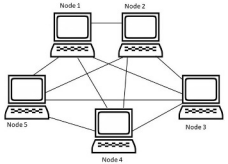
3.4 Data center, Wide area Network (WAN) and Internet Access



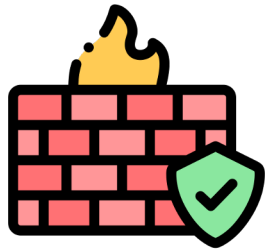
How our designed system can solve the problem

Requirements:

- Scalable
- Affordable
- Conveniently access in school
- Monitor easily
- Timely intervention
- Sustainable maintenance
- Network Security

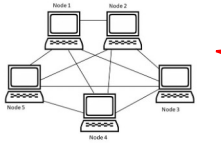


Bluetooth 5.0



Advantages and drawbacks of our system

Pros:



Scalability

Robustness

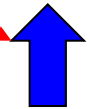
Timeliness

Flexibility

Bluetooth 5.0

Low cost

Easy implement



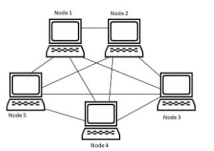
Transmission ability
Throughput
Network coverage

INTRANET

Privacy

Security

Cons:



Hard to manage & maintain

Latency

High cost

Secure Measurement

Risk Measurement Criteria

Impact Area	Priority	Low Impact	Medium Impact	High Impact
Safety	High	Proportion of Injures is less than 3%	Proportion of Injures is from 3% to 10%	Proportion of Injures is more than 10%
Reputation	High	Decrease in number of customer by less than 3%	Decrease in number of customer from 3% to 8%	Decrease in number of customer by more than 8%
Productivity	Medium	Annual operating expenses increase by less than 2%	Annual operating expenses increase by from 2% to 4%	Annual operating expenses increase by more than 4%
Legal	Medium	Incurring fines or legal fees less than $5,000	Incurring fines or legal fees from $5,000 to $30,000	Incurring fines or legal fees more than $30,000
Financial	Low	Sales drop by less than 2%	Sales drop by 2%–10%	Sales drop by more than 10%

Two main threats

Malicious virus attack:

The virus can invade any devices including servers and do harm to systems which may make the system crash and data loss or damage and all customers cannot access the product.

Risk Mitigation Controls:

1.Antivirus software
2. Educate and train employees
3. Enable firewall protection
4. Regularly back up data

Intrusion:

External hackers use unauthorized access or entry to get into a computer system, network, or device. It involves an individual or entity gaining access to resources, data, or functionalities without proper authorization.

Risk Mitigation Controls:

1.Encryption
2. Intrusion detection and prevention systems
3. Network segmentation

THANK YOU

Contact Us

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