



Department of ECE

19ECE311 Computer Networks

Project Report

Project Title: Gaming Centre Hub

Team Members (Name and Roll No)

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Project Title: Game Centre Hub using Cisco packet tracer

Objective: The main goal of this project is to create a network setup for a Game Centre Hub using Cisco Packet Tracer, where only the admin system is allowed to access the billing and management website. All other systems are restricted.

Network Design Overflow:

- Software: Cisco Packet Tracer
- Website: <https://gaming-centre.vercel.app>
- Topology Type: Star topology (Switch-based)
- Internet Access: Via Router → DSL Modem → Cloud → Server
- Website Access Control: Implemented via ACL (Access Control List)

Devices Used:

Device	Quantity	Purpose
Router (1941)	1	Connects LAN to Internet
Switch (2960)	2	Connects end devices in the LAN
PCs (PC-PT)	30+	Used by customers in the gaming centre
Server	2	One for internal services, one external
DSL Modem	1	Connects router to cloud
Cloud	1	Simulates Internet

Key IP Addressing Scheme:

- Admin PC: 192.168.0.10
- Subnet Mask: 255.255.255.0
- Router IP (LAN): 192.168.0.1
- DNS Server IP: 8.8.8.8

Configuration Steps:

On Router:

1. Enter configuration mode:
 - enable
 - configure terminal
2. Create access control list (ACL) to allow only admin:
 - access-list 100 permit ip host 192.168.0.10 any
 - access-list 100 deny ip any any
3. Apply ACL on outgoing internet interface:
 - interface FastEthernet0/1
 - ip access-group 100 out
4. Exit and save:
 - end
 - write memory

Access Control Logic:

Device	Can Access Website?	Reason
Admin PC	✓ Yes	Explicitly allowed by ACL
Customer PCs	✗ No	Denied by ACL rule (deny any any)

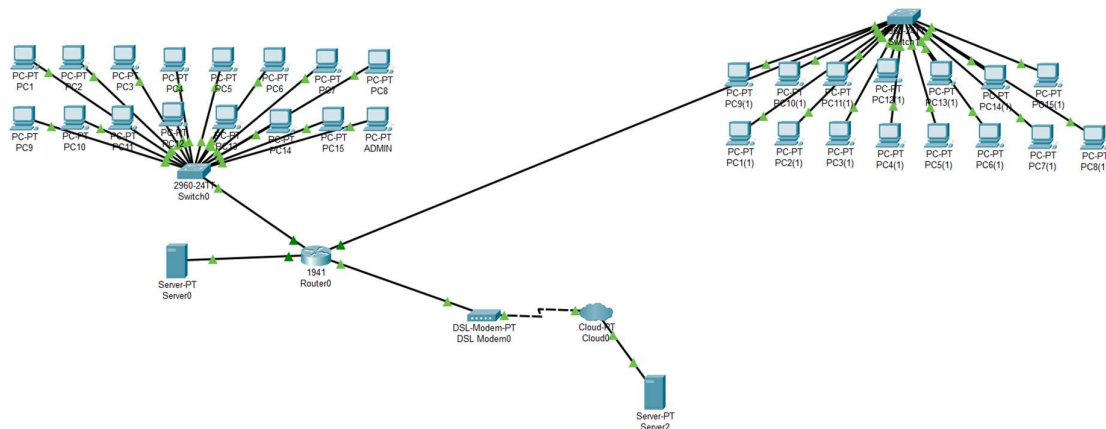
Website Integration:

- A billing website was hosted on <https://gaming-centre.vercel.app>
- The website should only open on the Admin PC.
- Access Control List (ACL) is used in the router to allow only the admin IP to access the website.
- Other PCs are blocked from reaching the billing site.

Implementation Steps:

1. Design the network topology using switches, routers, and end devices.
2. Assign static IPs to all systems.
3. Connect the router to the internet via DSL modem and cloud.
4. Create an ACL to permit only admin PC's IP.
5. Apply ACL on the internet-facing interface of the router.
6. Save the router configuration.
7. On the admin PC, test the website by opening: <https://gaming-centre.vercel.app>
8. Try the same on a client PC (it should not open).

Circuit Diagram:



Results:

- Admin PC was able to access the billing website successfully.
- All other PCs could not access the website due to ACL restrictions.
- The network is able to simulate real-world internet access and access control accurately.

Admin Page:

Admin Login

Username
admin

Password
.....

Login

Dashboard Page:

GameZone Hub

Dashboard Records Logout

Gaming Stations

Station 1 Available Login
Station 2 Available Login
Station 3 Available Login
Station 4 Available Login
Station 5 Available Login
Station 6 Available Login
Station 7 Available
Station 8 Available
Station 9 Available

Active Sessions
No active sessions

User Session Login:

New Gaming Session

Gamer Name
Vineeth

Station Number
1

Gaming Platform
Xbox Series X (₹90/hr)

Start Gaming

When a user is using System-1:

Gaming Stations

Station 1 Occupied
Station 2 Available Login
Station 3 Available Login

Active Sessions
Vineeth
Station 1
Xbox
Started: 2025-06-08 22:16:35
Logout

After completion the session by user we can logout and when we will click on logout we can get the bill by going to records :

Gaming Session Records

Gamer	Station	Platform	Duration	Start Time	End Time	Rs Bill
Vineeth	Station 1	Xbox	0:00:52.328732	2025-06-08 22:16:35	2025-06-08 22:17:27	₹1.31
Vineeth	Station 1	PS5	0:00:04.854327	2025-06-08 22:14:51	2025-06-08 22:14:55	₹0.13

Conclusion:

This project successfully demonstrates how to design a secure and well-managed game centre network using Cisco Packet Tracer. By using ACLs, only the admin system is allowed to access the online billing system. This setup enhances security and ensures centralized control.

This implementation is useful in labs, internet cafes, or game centres to prevent misuse of the internet and maintain efficient system administration.