

# GNS3\_1

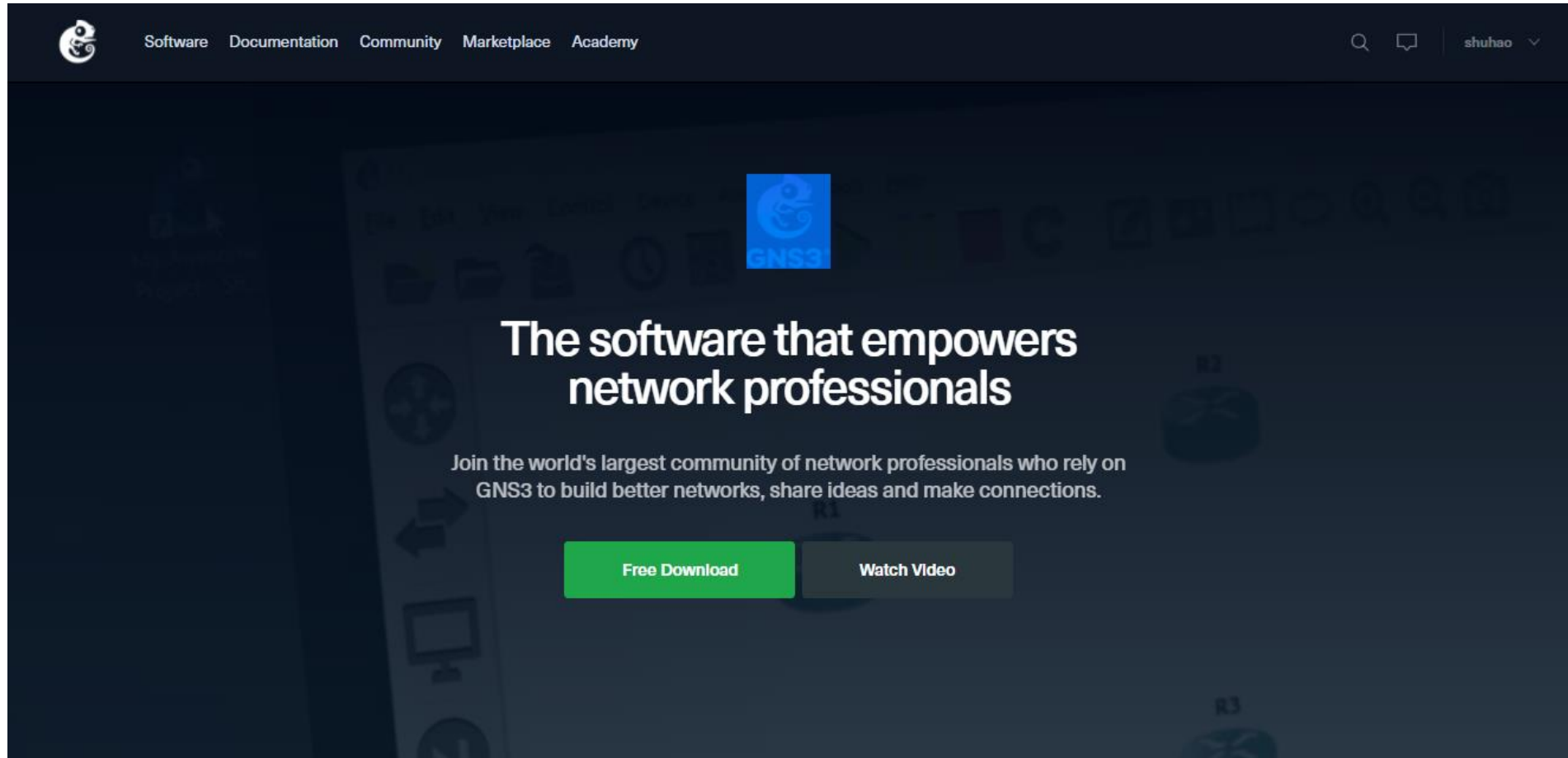
Getting Started

Paper Study

References

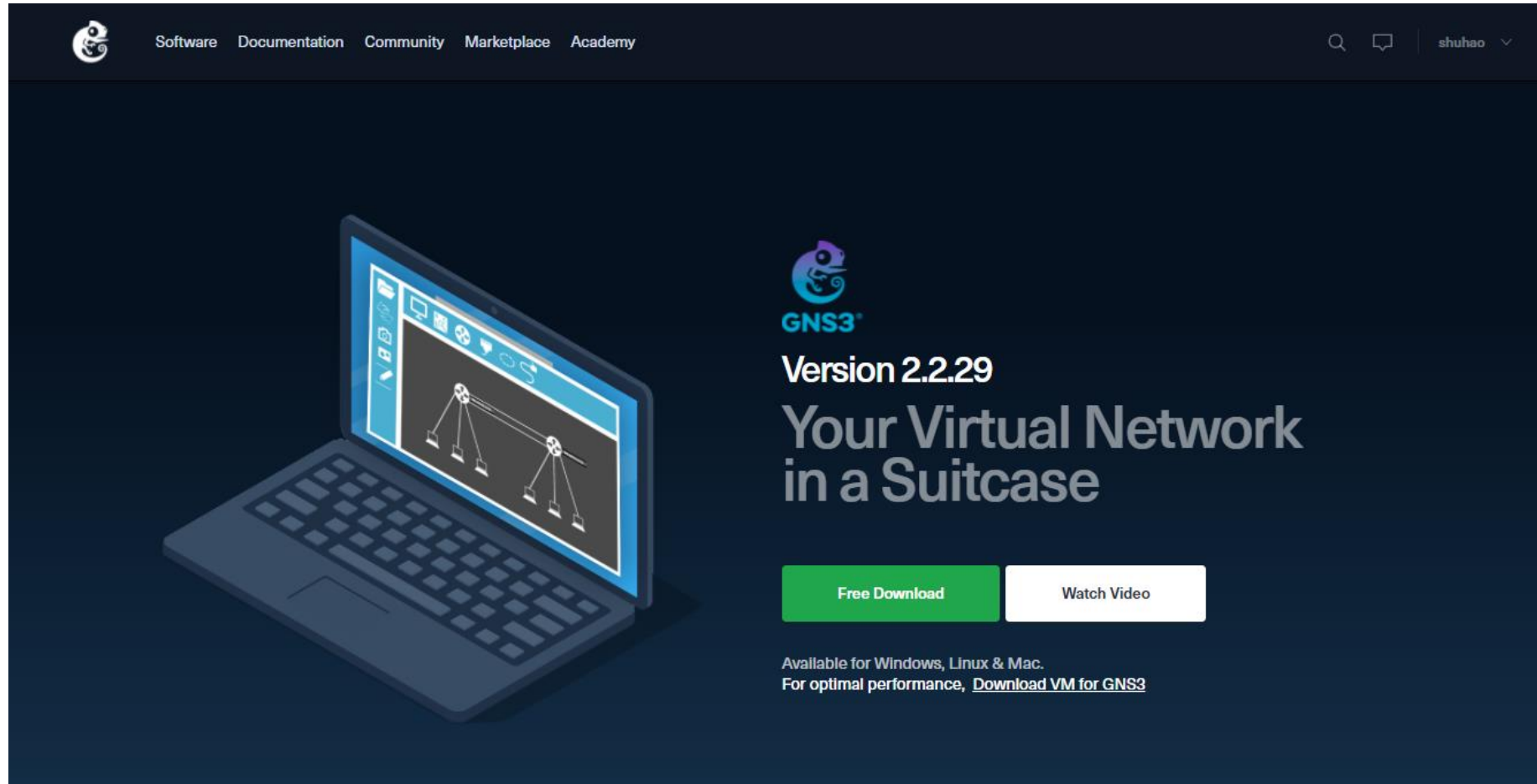
# Introduction

<https://gns3.com/>



# Software

<https://gns3.com/software>



The image shows the GNS3 software landing page. At the top is a dark navigation bar with the GNS3 logo on the left and links for Software, Documentation, Community, Marketplace, and Academy in the center. On the right of the bar are search, chat, and user profile icons. The main content area has a dark blue background. On the left is an illustration of a laptop displaying a network diagram. To the right of the laptop, the GNS3 logo is shown above the text 'Version 2.2.29' and 'Your Virtual Network in a Suitcase'. Below this text are two buttons: a green 'Free Download' button and a white 'Watch Video' button. At the bottom, a line of text states 'Available for Windows, Linux & Mac. For optimal performance, [Download VM for GNS3](#)'.

Software Documentation Community Marketplace Academy

shuhao


**GNS3**  
Version 2.2.29  
Your Virtual Network  
in a Suitcase

Free Download Watch Video

Available for Windows, Linux & Mac.  
For optimal performance, [Download VM for GNS3](#)

# Documentation

<https://docs.gns3.com/docs/>

 Documentation

AppliancesCommunity

Search

Getting Started

What is GNS3?

Installation

Setup wizard for local server

Setup wizard for GNS3 VM

Your first GNS3 topology

Your first Cisco topology

Using GNS3

Emulators

Contribute

How-to Guides

Troubleshooting & FAQ

## Getting Started with GNS3

### Introduction

GNS3 is used by hundreds of thousands of network engineers worldwide to emulate, configure, test and troubleshoot virtual and real networks. GNS3 allows you to run a small topology consisting of only a few devices on your laptop, to those that have many devices hosted on multiple servers or even hosted in the cloud.

GNS3 is open source, free software that you can download from <http://gns3.com>

It is actively developed and supported and has a growing community of over 800,000 members. By joining the GNS3 community you will be joining fellow students, network engineers, architects and others that have downloaded GNS3 over 10 million times to date. GNS3 is used in companies all over the world including Fortune 500 companies.

GNS3 can help you prepare for certification exams such as the Cisco CCNA, but also help you test and verify real world deployments. Jeremy Grossman, the original developer of GNS3 originally created the software to help him study for his CCNP certifications. Because of that original work, you can today use to help you do the same without paying for expensive hardware.

GNS3 has allowed network engineers to virtualize real hardware devices for over 10 years. Originally only emulating Cisco devices using software called Dynamips. GNS3 has now evolved and supports many

Introduction

What is GNS3?

Architecture

GNS3 Comparisons

GNS3

Packet Tracer

Cisco VIRL

Device Support

Use Cases

Versions of GNS3

GNS3 Help & Support

Documentation

Community

GNS3 YouTube channel

GNS3 courses

Supported Operating Systems

Supported Appliances

Should you use the GNS3 VM?

What is not supported or recommended


ASA 8




Local install with Qemu images

Complex topologies

# Community


<https://gns3.com/community/featured>

 [Software](#) [Documentation](#) [Community](#) [Marketplace](#) [Academy](#)

  [shuhao](#) 

## Community


Ask questions, start discussions and see what is happening in the world of GNS3

[Featured](#) 

[Blog](#)

[Discussions](#)

[Support](#)

 2,200 GNS3'ers registered for this 100% free & online event with some jam-packed network training!

[Register Free](#)

**LATEST VIDEO**

### How to succeed in #India

By David Bombal

**FROM THE BLOG**

### GNS3 2.2.29 Released!


By Jeremy Grossmann  
January 8, 2022


**FROM THE BLOG**


### Create a Router with Docker and Free Range Routing



By James McClay  
November 11, 2021

**Latest Community Discussions** [+ New](#)

 **Poll: Top Network & IT Free Tools** **PINNED** **POLL**  
Posted by Mark Blackwell · Updated Jan 26, 2022  
15 Replies · 915 Views

 **What's the largest network topology you've simulated in GNS3?** **PINNED**  
Posted by Jonathan Brown · Updated Jan 10, 2022  
26 Replies · 4276 Views

 **GNS3 Web-UI Feedback** **PINNED**  
Posted by Mark Blackwell · Updated Dec 20, 2021  
165 Replies · 8781 Views

 **THWACK CAMP 10**  
TODAY'S IT TRANSFORMERS  
**MARCH 2-3, 2022**  
FREE VIRTUAL EVENT  
 **18 Million Downloads**

# Marketplace

<https://gns3.com/marketplace/featured>

The screenshot displays the GNS3 Marketplace website. The top navigation bar includes links for Software, Documentation, Community, Marketplace, and Academy. A search bar and a user profile dropdown (shuhao) are also present. The main content area features a large banner for 'THWACKCAMP10' scheduled for March 2-3, 2022, with a 'REGISTER FREE' button. To the right, there's a promotional card for Solarwinds' 'Configure network devices without opening the CLI' using a 'FREE Network Configuration Generator', with a 'LEARN MORE' button. Below these, a yellow banner announces that 2,200 GNS3'ers registered for a 100% free online event with network training, accompanied by a 'Register Free' button. The 'Latest Marketplace Items' section lists three items: 'Docker' (Software, Oct 26, 2021, 3 Comments, 26905 Views), 'Linux for Network Engineers with GNS3!' (Training, Aug 5, 2020, 2 Comments, 16240 Views), and 'Cisco ASA Firewalls eBook' (Training, Sep 30, 2021, 1 Comment, 4375 Views). A sidebar on the left contains a 'Marketplace' header, a description 'The one-stop networking shop for GNS3 Network Pros', and a list of categories: Featured, Appliances, Labs, Software, Training, and Podcasts.

**Marketplace**  
The one-stop networking shop for GNS3 Network Pros

**Featured**

Appliances

Labs

Software

Training

Podcasts

**MARCH 2-3, 2022**

solarwinds

**THWACKCAMP10**

TODAY'S IT TRANSFORMERS

REGISTER FREE

**Configure network devices without opening the CLI**

with the FREE Network Configuration Generator

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solarwinds

2,200 GNS3'ers registered for this 100% free & online event with some jam-packed network training!


Register Free

**Latest Marketplace Items**

Item	Type	Date	Comments	Views
Docker	SOFTWARE	Oct 26, 2021	3 Comments	26905 Views
Linux for Network Engineers with GNS3!	TRAINING	Aug 5, 2020	2 Comments	16240 Views
Cisco ASA Firewalls eBook	TRAINING	Sep 30, 2021	1 Comment	4375 Views

# Academy

<https://gns3.teachable.com/>

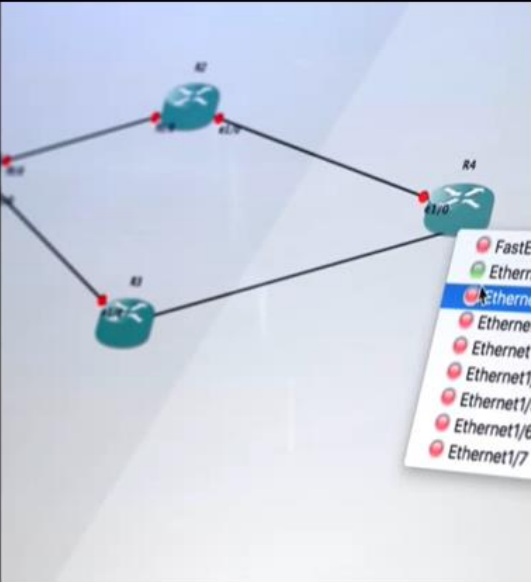


[My Products](#) [All Courses](#) [GNS3 Certification](#) [Login](#) [Sign Up](#)

```
MLS_1(config-if)#switchport port-security aging type
absolute Absolute aging (default)
inactivity Aging based on inactivity time period

MLS_1(config-if)#switchport port-security aging time
<1-1440> Aging time in minutes. Enter a value betw

MLS_1(config-if)#switchport port-security aging time
MLS_1(config-if)#AZ
MLS_1#
01:15:18: %SYS-5-CONFIG-I: Configured from console by
MLS_1#show port-security address
Secure Mac Address Table
-----
Vlan    Mac Address      Type
-----
100     0017.59e2.474a   SecureDynamic
100     001b.d4c2.0990   SecureDynamic
100     aaaa.aaaa.aaaa   SecureConfigured
100     aaaa.bbbb.aaaa   SecureConfigured
-----
Total Addresses in System (excluding one mac per port
Max Addresses limit in System (excluding one mac per
MLS_1#
```



## Courses for network pros to learn anywhere.

All you need to become a network professional. Over 600 hours of network training.

Explore Courses

# Use GNS3 in real cases

- Why do we need to learn GNS3? To have a fundamental skill for your industrial career, not just know the technology from books.
- 5G network implementation.
  - <https://www.researchgate.net/post/How-5G-network-implement-in-GNS3-simulation-enviroment>

Question

Asked 15th Sep, 2020



**Hapuarachchige Don Nelaka Shayamal Priyankara**  
The Open University of Sri Lanka

How 5G network implement in GNS3 simulation enviroment?

Dear All

If you have the hierarchical implementation of the 5G network In the GNS3 simulation environment, Please share.

Nelaka



# Paper study

<https://doi.org/10.1016/j.comcom.2017.11.007>

## 5G-UHD: Design, prototyping and empirical evaluation of adaptive Ultra-High-Definition video streaming based on scalable H.265 in virtualised 5G networks






Computer Communications



Volume 118, March 2018, Pages 171-184



### 5G-UHD: Design, prototyping and empirical evaluation of adaptive Ultra-High-Definition video streaming based on scalable H.265 in virtualised 5G networks

Pablo Salva-Garcia , Jose M. Alcaraz-Calero , Ricardo Marco Alaez , Enrique Chirivella-Perez , James Nightingale , Qi Wang  

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<https://doi.org/10.1016/j.comcom.2017.11.007>

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# Exercise

- Midterm report
  - 5G Network design for Smart Factory Setup
  - Reference: based on the “Paper study” to duplicate a 5G network
- Final report (either one)
  - build a 5G distributed cloud with QoS control
  - build a 5G network application

# Reference


- Reference:
  - Nokia 5G Unit 3 - Foundation of Distributed Cloud
  - Nokia 5G Unit 4 - Foundation of Network Slicing (traffic flow based on Quality of Service)

The relationship between IT cloud and 5G distributed cloud

You have now completed both sections. Click or tap "next" to continue.


### IT cloud

- Cloud infrastructure
- Virtual resources
- Virtual management

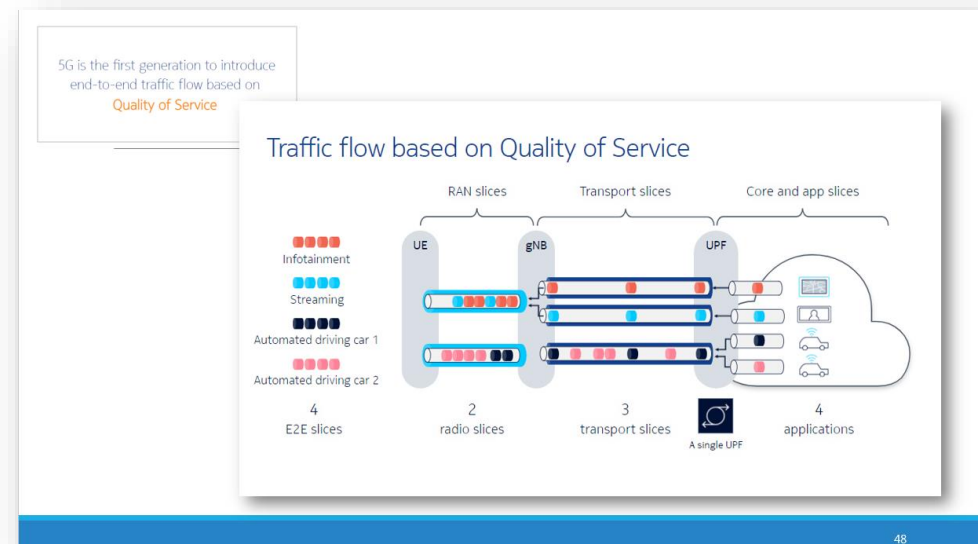


### 5G distributed cloud

- Multiple cloud levels
- Network functions
- Automation and orchestration



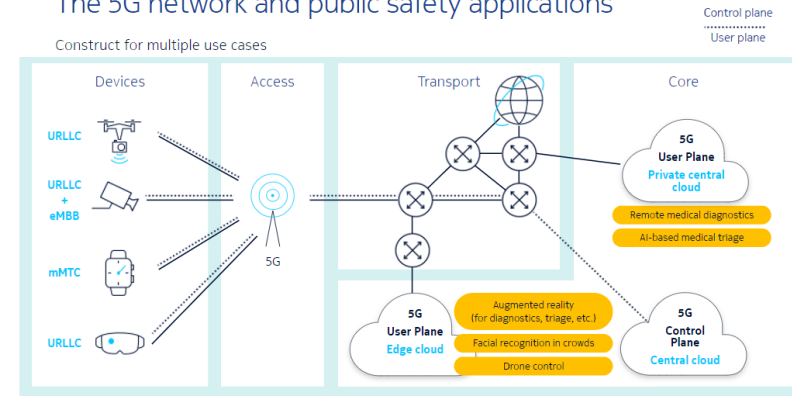
71



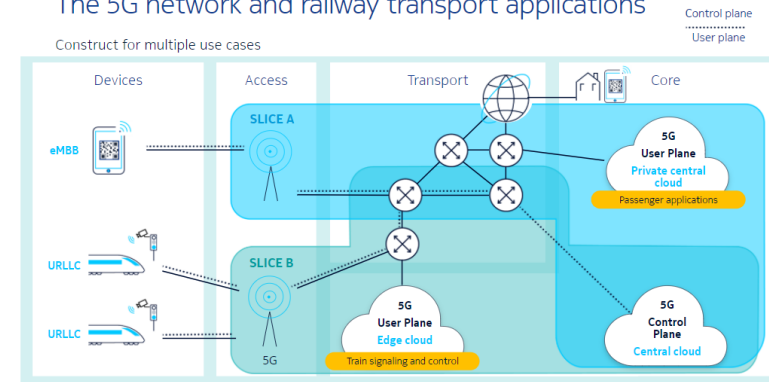
# Reference

- Reference: Nokia 5G Unit 6 - Foundation of Industrial Automation
  - Public safety applications
  - Railway transport applications
  - Manufacturing applications

The 5G network and public safety applications



The 5G network and railway transport applications



The 5G network and manufacturing applications

