



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

200
1822 - 2022

Man Geni Addysg Uwch yng Nghymru
Where Higher Education Began in Wales



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Introduction

***Network Programmability
(ACCB5029)***

Applied Computing - WISA

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- ✓ Overview
- ✓ Review Linux and Python Skills
- ✓ Devnet Developer Environment

- ✓ This week's Tutorial and Independent learning
 - *Download and Setup VM*
 - *Explore DEVASC VM GUI*
 - *Create Lab environment Accounts*
 - *Install Webex Teams on your Device*

- ✓ Independent learning
 - *Explore Devnet Resources*
 - *Continue with Devnet Course in Cisco Networking Academy*

This session, you will be introduced to the environment in which you will work towards completing the tasks for this Module. Overall, in this module you will understand APIs, Software Development and Design, Infrastructure and Automation.

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In Class Discussion

- ✓ Difference between virtual machine and physical computer
- ✓ Linux in real life!
- ✓ Experience with coding!!! Discuss the benefits of Python over other programming languages

Why Network Programmability?

- ✓ Evolving Technology:
 - ✓ 10 years ago.... It was more fully packed within organisation.
 - ✓ Now.... Almost all services are moving towards cloud.
- ✓ Networking and Programming are no more two different ends!!!
 - ✓ Coding is coming...
 - ✓ Infrastructure as Code is increasingly important, if not mandatory.
 - ✓ Increasing demand...
- ✓ Sysadmins and network engineers are gaining more crossover than ever before.

Why Network Programmability Module?

Understand, Visualize, Try, Apply

“to manual grunt work into efficient, scalable solutions”

Automate

Secure

Scale

Build

What are we dealing in this module?

This module is aligned with Cisco Devnet Certification.

Linux for DevNet

- ✓ Linux has gained widespread use in servers, Internet of Things (IoT) devices, networking equipment, smartphones, and many other devices that may not seem as even being computers.
- ✓ A very powerful tool, impossible to avoid in the industry.
- ✓ All coding labs in this Module are performed on a Linux-based VM.

Python

Few factors that make Python a great tool for learning basic coding are:

- ✓ It is easy to learn - the time needed to learn Python is shorter than for many other languages.
- ✓ It is easy to use for writing new software – it is possible to write code faster when using Python.
- ✓ It is easy to obtain, install and deploy - ***Python is free, open and multiplatform.***
- ✓ Python provides a solid foundation and allows to learn other programming languages (for example, C++, Java, or C) much easier and faster.

What are we dealing in this module?

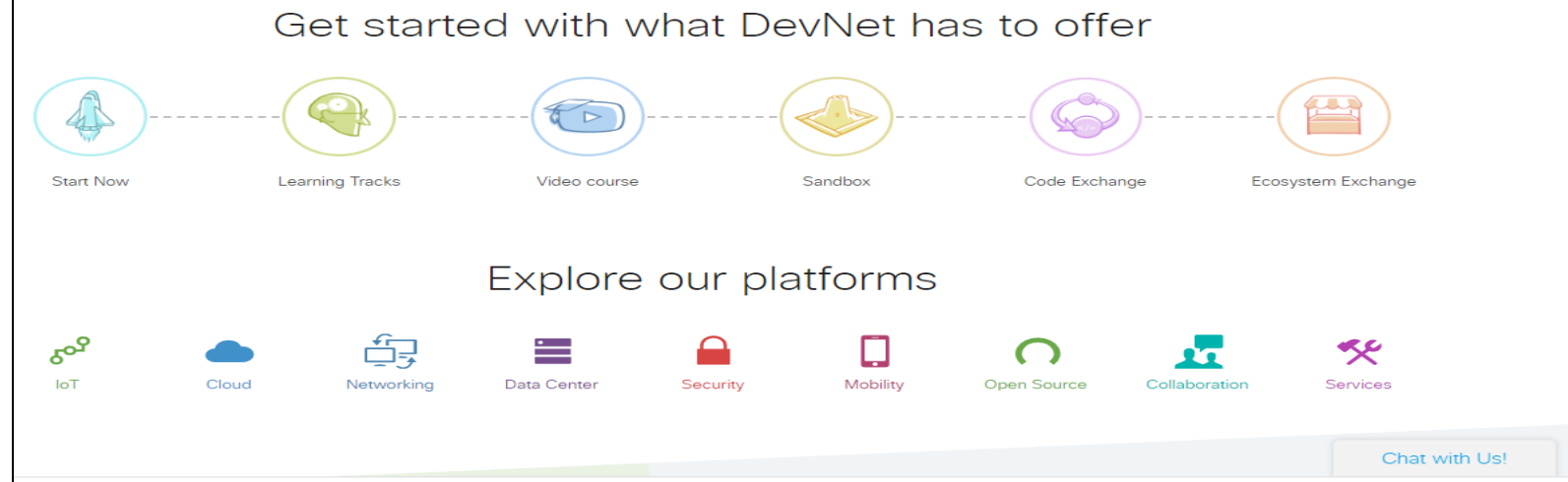
- ✓ A **REST web service** API (REST API) is a programming interface that communicates over HTTP while adhering to the principles of the REST architectural style.
- ✓ Rest APIs let you exchange information with remote services and equipment.
- ✓ The three most popular **standard formats for exchanging information** with remote APIs are XML, JSON, and YAML.
- ✓ **Version control**, also called version control systems, revision control or source control, **is a way to manage changes** to a set of files in order to keep a history of those changes. It enables Collaboration, Accountability and visibility.
- ✓ **Automation** is using code to configure, deploy, and manage applications together with the compute, storage, and network infrastructures and services on which they run Infrastructure as code.

What is DevNet?

- ✓ DevNet is a **fully-integrated developer program** comprising
 - ✓ a website,
 - ✓ an interactive developer community,
 - ✓ Coordinated developer tools,
 - ✓ Integrated discussion forums, and
 - ✓ Sandboxes.

DevNet Resources

✓ It consists of the following features:



✓ Learning Labs

- Self-paced tutorials that covers topics from basic coding to using REST APIs with various technologies

✓ Sandboxes

- Production-like development and testing environments for a host of technologies

✓ Code Exchange

- A repository of sample code written by other developers

✓ Developer support

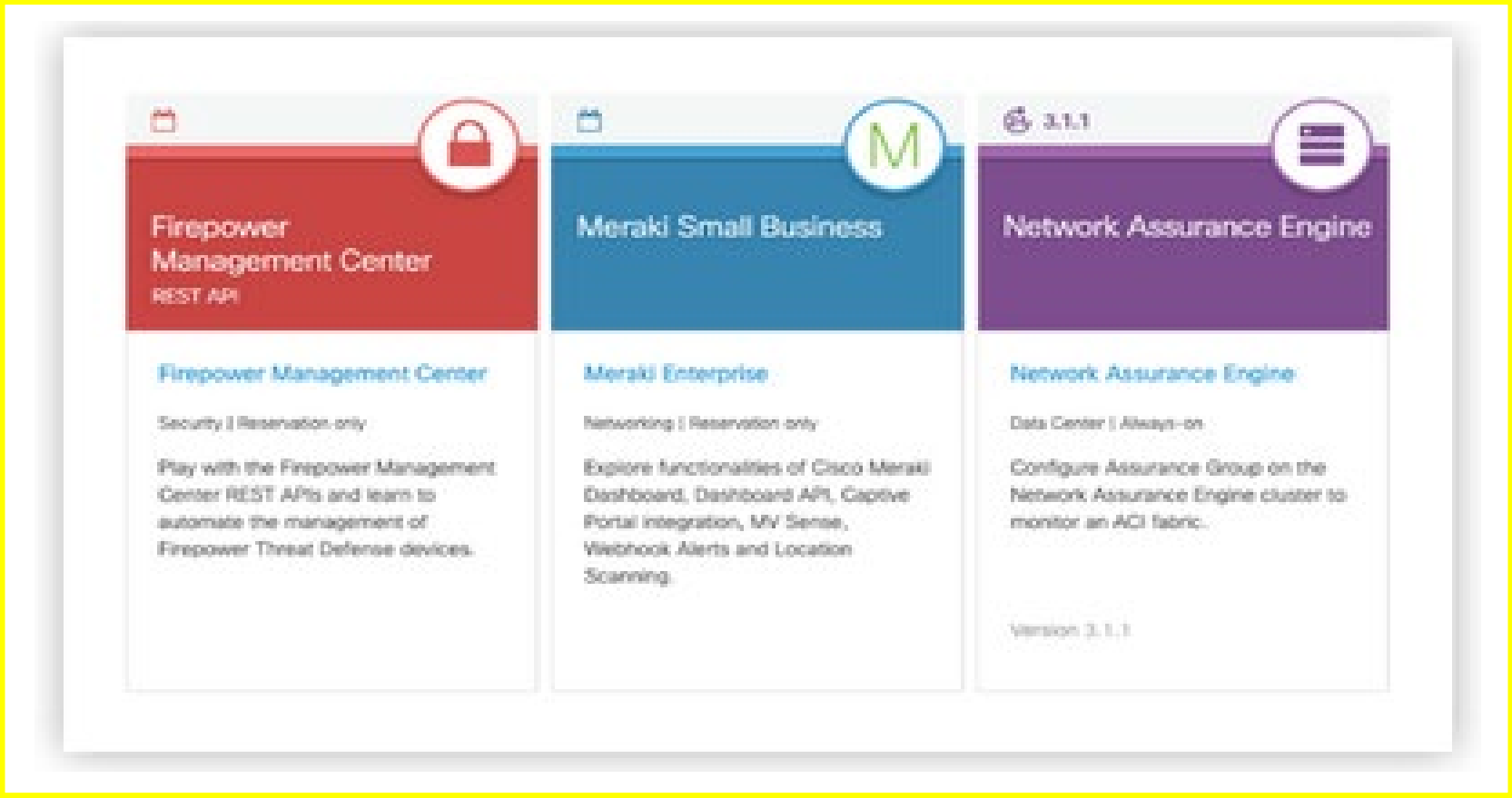
- Support for developer related issues through tickets, live chats, and forums

✓ Developer documentation

- A central location for all of the product developer API documentation

DevNet Resources: Sandbox

- ✓ DevNet offers a host of sandboxes that enables hands-on exploration of software and APIs



DevNet Resources: Exchanges

Available exchanges:

✓ Automation Exchange

- This exchange provides a **collection of network automation use cases** with different solutions and toolkits.

✓ Code Exchange

- This exchange is a **repository of source code or tools**. It uses the GitHub API, as well as human moderators, to categorize and display hundreds of related repositories.

✓ Ecosystem Exchange

- In this exchange, you can find **over 1,500 solutions across different technologies, industries, and geographies** to begin solution design and development.

What to expect?

- ✓ Contribution from Students/ Group Work/ Discussion etc
- ✓ Follow our lecture and tutorial activities. Though they are not directly associated with your Module marks, those tasks will help you achieve good score. Some of them, you shall use it for your assessments
- ✓ Extra reading is important. Start from Day 1!!!
- ✓ Expect to get stuck in the middle during your activities. Troubleshoot, discuss with your Team, classmates, with your lecturer to overcome the difficulties.
- ✓ If you can't make it to the class/ tutorials, inform your Team and the Lecturer.



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Any Questions?

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