Networking Academy

Comparing Cisco Packet Tracer and Cisco Modeling Labs Free

Overview:

Cisco Packet Tracer is designed to be user-friendly and accessible, requiring minimal technical skills and fewer hardware resources, making it an excellent choice for beginners and educational settings. Cisco Modeling Labs (CML) Free provides an opportunity to work with real operating systems and explore advanced networking capabilities, although requiring more technical skills and hardware resources to run effectively. Together, these tools offer complementary learning experiences suited to a variety of educational and professional development needs.

Comparison criteria	Cisco Packet Tracer 8.2.2	Cisco Modeling Labs Free CML 2.8
Type of a Learning Tool	Simulator	Emulator
Minimal System Requirements	CPU: Intel Pentium 4, 2.53 GHz or equivalent RAM: 2 GB Hard Disk: 1.4 GB of free disk space	CPU*: 4 (physical cores) - Intel only RAM: 8 GB Hard Disk: 32 GB * Processor must support VTx and EPT.
Supports real Operating Systems and all CLI Commands	NO Cisco Packet Tracer is a simulator that supports a limited set of commands – only the ones modeled (up to CCNA level).	YES CML Free is an emulator that supports all commands available in Cisco IOLv, IOLvL2, ASAv images + Linux based hosts (like Ubuntu or Alpine).
Student exposure to Layer 1 tasks	YES Cisco Packet Tracer's Physical View feature offers a realistic representation of a network's physical layout, allowing users to visualize device placement, cabling, Rack & Stack...	NO
Automated Lab Grading Feature	YES Cisco Packet Tracer has an impressive feature that allows it to automatically grade students' work. This means that students can receive instant feedback and see their scores based	NO CML configurations must be manually inspected by the instructor.

	on their performance in the lab. This capability is not only helpful for instructors but also enhances the learning experience for students, as they can quickly understand their strengths and areas for improvement.	
Scalability	Cisco Packet Tracer can simulate tens of devices in larger topologies at the same time. The specific number of devices you can simulate depends on the capabilities of the computer where it is installed.	Users of the CML Free can create topologies with a maximum of 5 simultaneously running devices (also end-nodes count against the 5-node limit).
Supports IoT Technologies	YES	NO
Supports Wireless Technologies	YES	NO
Supports Simulation Mode	YES Cisco Packet Tracer enables users to visualize and analyze network traffic either in real-time or step-by-step. This interaction helps learners gain a clearer understanding of how data packets travel through a network.	NO
API to connect to real external network devices	NO	YES CML supports integration with external systems and tools, allowing users to seamlessly connect their CML topology with a real network infrastructure.