



# DEFT Netz2.0

## What makes it the Best

DEFT Technologies, a research based software company, originating from the Indian Institute of Technology, Kharagpur, brings to you the latest and most advanced in network simulations and analysis with DEFT Netz 2.0 – the complete networking suite, offering simulations as well as real time network applications.

Our keywords – **Best Technology, Comprehensive Content and Minimum Cost**, and yes, this is the **DEFT Guarantee!** In a timeframe of less than six months of its launch, DEFT Netz 2.0 can boast of institutions of repute, as its users.

### Uniqueness in technical content and quality

We offer the widest range of networking technologies, encompassing undergraduate and post-graduate study levels of network engineering across the globe. A detailed comparison of our technology contents with other simulators would explicitly declare the supremacy of DEFT Netz 2.0 over them.

#### Packet Switching

Virtual circuit and datagram packet switching technologies, modeling homogenous and heterogeneous control and data planes, contention resolution technologies such as nodal buffering and packet deflection, source-destination bandwidth reservation for each simulation run, X.25, Frame Relay

#### Circuit Switching

Soft-switch architecture, analyzing the public switched telephone network (PSTN), configurable calls and bandwidth demands with call duration, randomized generation, in-channel signaling with in-band & out-of-band modes, common channel signaling, signaling bandwidth configuration, comparing with packet switching

#### Ethernet Networking

CSMA/CD protocol, complete ethernet architecture, binary back-off algorithm, 1-persistent/p-persistent medium access, fast/gigabit ethernet access modeling, cut-through & store and forward switching with offset delays, Jam pattern transmission; waiting time and other features/network topologies

#### ATM Networking

VPCs / VCCs, ATM Protocol Architecture, cells and logical connections, ATM Adaptation Layers (AALs), Segmentation and Reassembly (SARs), semi-permanent and controlled VPCs, auto-generated VCCs, Cell-based and SDH-based physical layer, Real-Time and Non-Real-Time ATM Services, ATM Network Interface Cards, ATM Switches, meta-signaling

#### FDDI Networking

Synchronous/Asynchronous traffic distributions, capacity allocations, TTRT, heterogeneous synchronous allocations for FDDI stations, ring-wrapping, late counters, FDDI channel elements, FDDI protocol architecture.

#### Optical Burst Switching

Latest technology in optical networking, combination of packet switching and circuit switching, OBS edge and core routers, traffic segregation, JET/JIT/RFD mechanisms, edge access with CAT/VAT burst assembly, base offset times, wavelength scheduling and class isolation in the core.

### Cellular Networks

First, second and third generation cellular networking systems, symbol rate and chip rate configuration, BS/MU transmission bands, TDMA, CDMA, W-CDMA medium access technologies, mobile units (mobile phones), base-stations and mobile-telephone switching offices with cluster modeling to model thousands of nodes in a single go.

### Token Rings (IEEE 802.5)

Classical & Dedicated Token Rings, early-token release, priority provisioning, Token Ring Network Interface Cards, Source Routing Bridges, Multi-Station Access Units, active/passive MSAU modes

### IP Multicasting

IP-based multicasting analysis, Class-D IP addresses, pruning, multicast group formation and management with IGMP v1,2,3, multicast session configuration and management, MOSPF/DVMRP routing

### Wireless Networking

Compliant to IEEE 802.11, PCF and DCF configurations, LAN extension and Ad-Hoc LAN modes, CSMA/CA protocol with binary exponential back-off algorithm, wireless access points, wireless bridges and mobile computers with movement modeling, FHSS, DSSS and Infra-red physical access

And lots more!

## Protocol Tester

The protocol tester allows the user to play around with a varied set of protocols that cover the requirements of nearly all the educational institutions across the globe for UG/PG networking courses. **No other simulator** gives you a handy protocol tester to judge the performance of such a **wide range of protocols**, besides the normal simulator mode which also allows for the integration of networks based on these protocols.



An example list of the protocols that can be configured and tested with DEFT Netz 2.0 would include **Aloha, Slotted Aloha, CSMA, Slotted CSMA, CSMA/CA, CSMA/CD, FAMA, TDMA, FDMA, CDMA, wCDMA, IP, TCP, UDP, Sliding Window, Stop-and-Wait ARQ, Selective-Reject ARQ, RIP, OSPF, BGP, IGRP, MOSPF, DVMRP, IGMPv1,2,3, ATM, X.25, Frame Relay, JET, JIT, RFD, Ping, FTP, HTTP, SMTP, ARP, RARP, DHCP, Finger, HDLC ...** and lots of others

## Unique Traffic Features

Advanced traffic generation with full scale traffic modeling capabilities, inheriting from a number of distributions. No other simulator gives you such a varied option list for network traffic generation. These distributions can be used for modeling packet arrivals and packet sizes, generation intervals for packets, lengths and other metrics. **You can have the best in traffic modeling with DEFT Netz 2.0**

- ✓ Easily test protocols and technologies
- ✓ Learn to design networks and configure network elements
- ✓ Use modeling techniques to create the 'Internet' on your workspace
- ✓ Teachers and researchers work with us online to grow their skills

Traffic	DEFT Netz 2.0	Other Simulators
Poisson	✓	✓
Exponential	✓	✓
Bernoulli	✓	✓
Pareto	✓	
Self-Similar	✓	
Normal	✓	
Weibull	✓	
Cauchy	✓	
Laplace	✓	
Logarithmic	✓	



## Simulator with Real Time Networking

DEFT Netz 2.0 provides the students with first-hand experience in working on real-time networking utilities, changing them as per the requirement and building other networking applications. **DEFT Netz 2.0 is the only networking environment that provides the students with such a real-time and varied experience in networking.**

Networking Utilities	DEFT Netz 2.0	Other Simulators
Real-time Ping	✓	
Real-time NetStat	✓	
LAN Chat	✓	
Real-time Trace Route	✓	
Real-time Multicast Chat	✓	
Who Is Domain Query	✓	
IOCP Server Client	✓	
BiDirectional RPC	✓	
CRC – 32	✓	
IP Address Analysis	✓	
Finger	✓	
Packet Capture	✓	✓



## Animations and Imagery

DEFT Netz 2.0 comes with a huge bank of networking animations, movies and imagery to completely teach the students about the architecture of the network elements that they are using in the workspace, along with the protocol concerned.

**For example, a student simulating an Ethernet LAN should know completely about what he/she is designing, the architecture and internal working of the network interface cards, Ethernet Hubs and Switches, Bridges and routers along with the working protocol.**

	DEFT Netz 2.0	Other Simulators
Networking Animations	✓	✓
Imagery	✓	
Explanation of Internal Components with real-time emphasis	✓	

## Ease of Graphical Usage

DEFT Netz 2.0 has been built to give the beginners as well as those who already know a lot about networks, an ease in the complete network design process. This is why the complete networking interface provides the user with excellent graphical design capabilities. DEFT Netz 2.0 provides you with the best.

## Cost and Licenses

DEFT Netz 2.0 comes at an affordable price. In fact, the mission of DEFT Technologies is to change the face of technical education by providing technically **high-end** but **affordable** software solutions to colleges and institutions. DEFT Netz 2.0 is undoubtedly the **cheapest software** for institutions offering courses in network engineering. And having a look at the package contents for DEFT Netz 2.0, along with the flexible licensing strategy and the latest offers coming directly from the OEM, one can never even think of anything else.

## Customization Levels

DEFT Netz 2.0 comes with a complete set of **Sample Experiments** and **handouts** for your own syllabus, so that you can get started right away. All this with **three** manuals –

**Netz Manual,**

**Modules Manual** and

**Networking Technology Manual,**

to help you throughout. Our networking research team is always on the lookout to find out the changes in **networking syllabi** within your framework, and to convey the changes to them as soon as possible.

Also, we give you access to the **DEFT Technologies Extranet** and the **Networking Resource Center**, with huge resources for teaching networking, carrying out research or to perform laboratory experiments for your curriculum.



**Helping you grow fast  
with Minimum Cost &  
Personalized Support**

## The Best Development Team

The networking research & development team at DEFT Technologies comprises of renowned names in the field of networking, creating a homogenous group of people from different universities in India and abroad. The team has published numerous research papers in several national and international journals and conferences, which attribute to the **technical content** and **quality of DEFT Netz 2.0**. A brief list of the people who have made **significant contribution** in the development of DEFT Netz is:

Mr. Amar Gahlot, Founder, DEFT Technologies

Mr. P. Venugopal, Founder, DEFT Technologies

Mr. Shubham Jain, Founder, DEFT Technologies

Mr. Karan Chauhan, Massachusetts Institute of Technology (MIT), Boston, USA

Mr. Varun Arora, Stanford University, USA

Mr. Vikrant Chauhan, Georgia Institute of Technology, Atlanta, USA

Mr. Saurabh Gupta, Carnegie Mellon University (CMU), Pittsburg, USA

Mr. Vetri Kamal, E&ECE, IIT Kharagpur

Mr. Ankit Gahlot, E&ECE, IIT Kharagpur



## Technical Board

### **Prof. G. S. Sanyal**

Better known as the 'Father of Telecommunications' in India, Prof. Sanyal, a former director and the most venerated professor IIT Kharagpur has seen, has fifty years of experience behind him as a faculty. He also

has the School of Telecommunications named after him here at IIT Kharagpur. With such a vast experience behind him, it is a privilege to have him as the director of the technical advisory board, DEFT Technologies.

### **Dr. R. Gangopadhyay**

Dr. Ranjan Gangopadhyay is Professor and former Head of the Department of Electronics & Electrical Communication Engineering of Indian Institute of Technology, Kharagpur. He has worked as a Visiting Scientist at British Telecom, UK, University of Pisa, Italy and KAIST, Korea. He has also worked as a Research Fellow at the Loughborough University of Technology, UK and University of Ottawa, Canada. He is a well known name in the field of Networking. He is also a reviewer of IEEE journals with a number of Research Papers in the fields of optical and mobile networking.

### **Dr. R. Roy**

Dr. Rajarshi Roy is an Assistant Professor in the Department of Electronics & Electrical Communication Engineering of IIT Kharagpur. He obtained his Ph.D. in Communication Networks from Polytechnic University, Brooklyn, NY, USA and his Masters in Electrical Communication Engineering from IISc, Bangalore, India. Before joining IIT Kharagpur, he has worked for Comverse Network Systems, Wakefield, MA, USA and Lucent Technologies, Bangalore, India. He has worked in Bell Laboratories, Lucent Technologies, Holmdel, NJ, USA and as a visiting researcher in ISI, Calcutta, India.

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## **Interested?**

For more information about DEFT Technologies Pvt. Ltd. and the offered products and/or services, visit [www.deftnetwork.com](http://www.deftnetwork.com) or talk to us:

### **DEFT Technologies**

Science & Technology  
Entrepreneurs' Park,  
JSSATE, Sector – 62,  
Noida, UP, India  
9999025525, 9911422089

### **DEFT Technologies**

Dept of E&ECE,  
Indian Institute of Technology,  
Kharagpur – 721302  
W.B., India  
+91 9732931355

