

The top banner features a blue and white abstract background with circular patterns and a computer monitor on the right. The logo on the left consists of three overlapping circles in shades of blue and white.

EdgeTech Development
We are always on the cutting edge!

TCP/IP Packet Descriptor

Preliminary Design

Welcome

Mr. Ken Swarner

EdgeTech Members

- | | | |
|-------------------------|---|----------------------|
| Matt DeCrescente | - | Team Leader |
| Jill Foster | - | Librarian |
| Eric Fish | - | System Admin. |
| John Mooney | - | Consultant |
| Das Nobel | - | Webmaster |

Preliminary Design

Roger Bacon Room 328

December 10, 2004

- Matt DeCrescente Introduction & Conclusion
- Jill Foster Interface Design
- John Mooney Testing

Overview

- **Interface Design**
- Testing
- Conclusion

Interface Design

• TCP/IP Descriptor Prototype

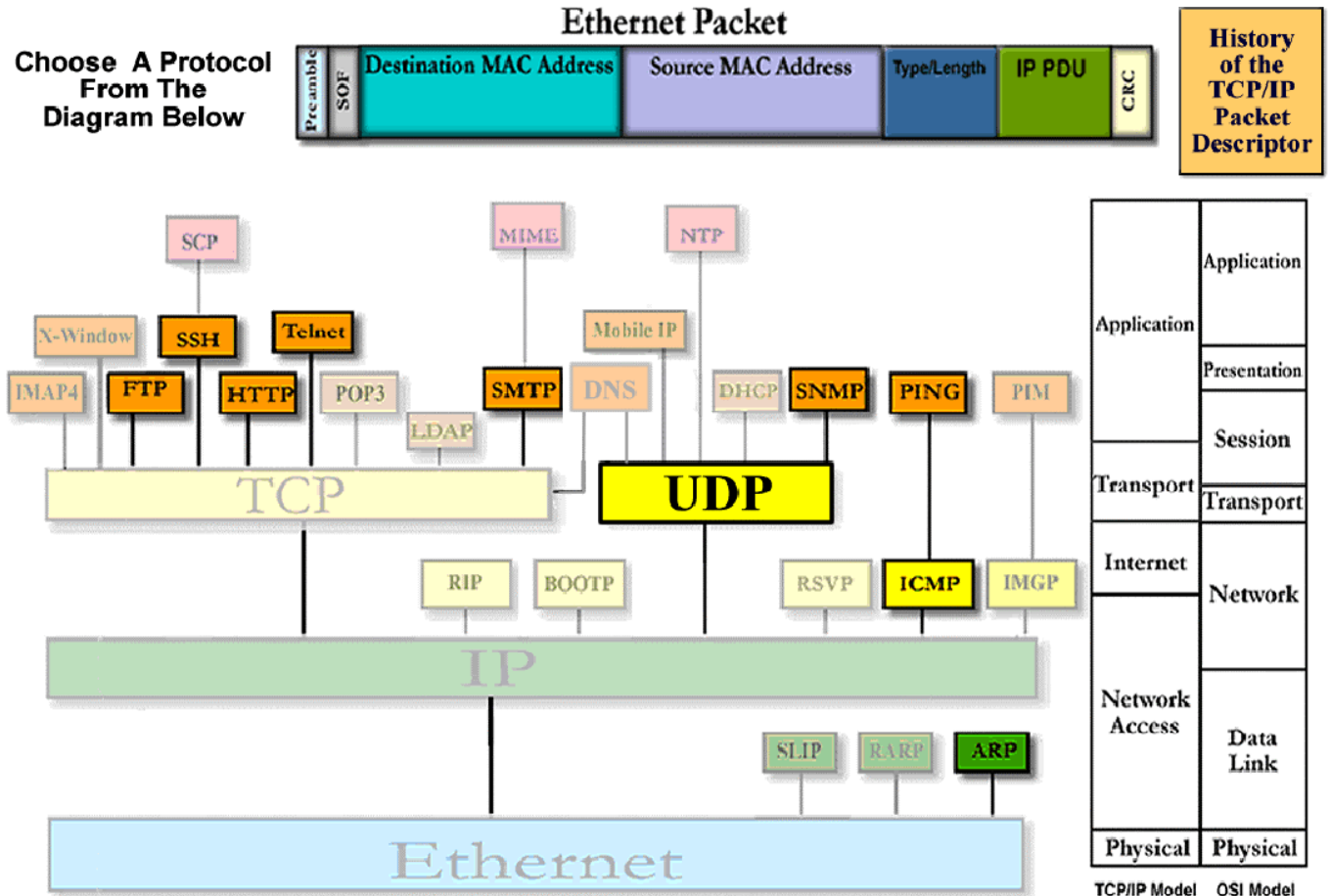
Overview

- Introduction
- **Testing**
- Conclusion

Choose Protocol Screen

Functional Buttons

- FTP
- SSH
- HTTP
- Telnet
- SMTP
- SNMP
- PING
- UDP
- ICMP
- ARP
- History Button
- Preamble
- SOF
- Destination MAC Address
- Source MAC Address
- Type/Length
- IP PDU
- Cyclic Redundancy Check



Choose Session/Packet Screen

- Functional Buttons

- Choose A Protocol
- Name (To sort)
- Date (To sort)
- Any File
- Any Packet
- Preamble
- SOF
- Destination MAC Address
- Source MAC Address
- Type/Length
- IP PDU
- Cyclic Redundancy Check

Ethernet Packet

Choose Protocol

Preamble	SOF	Destination MAC Address	Source MAC Address	Type/Length	IP PDU	CRC
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FTP
TCP
IP
Ethernet

FTP

Select A Packet From The Right Or Open A New Captured Session Below

Directory:

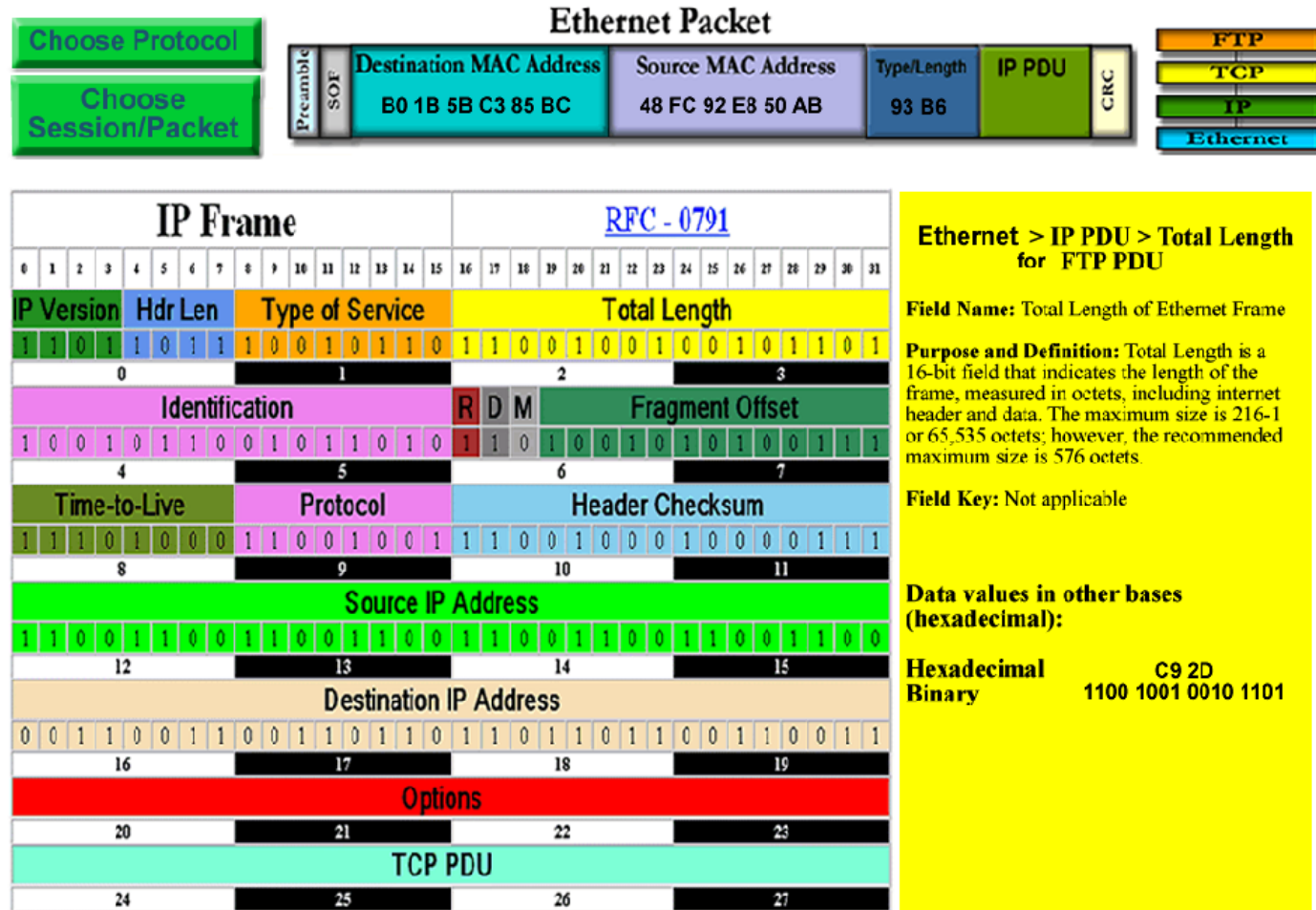
/usr/local/etherdumps_edge	
Name	Date
FTP_JPEG	10/10/2004
FTP_Bitmap	09/10/2004
FTP_InstallFile	04/01/2004
FTP_Document	11/01/2003

No. -	Time	Source	Destination	Protocol	Info
1	0.000000	192.168.0.39	192.168.0.101	TCP	32816 > ftp [SYN] Seq=0 Ack=0 win=!
2	0.000154	192.168.0.101	192.168.0.39	TCP	ftp > 32816 [SYN, ACK] Seq=0 Ack=1
3	0.000401	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=1 Ack=1 win=!
4	0.013027	192.168.0.101	192.168.0.39	FTP	Response: 220 cb118ks.cs.siena.edu
5	0.013375	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=1 Ack=95 win=!
6	6.676401	192.168.0.39	192.168.0.101	FTP	Request: USER fakeuser
7	6.676429	192.168.0.101	192.168.0.39	TCP	ftp > 32816 [ACK] Seq=95 Ack=16 win=!
8	6.677232	192.168.0.101	192.168.0.39	FTP	Response: 331 Password required for
9	6.677417	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=16 Ack=132 win=!
10	13.813892	192.168.0.39	192.168.0.101	FTP	Request: PASS flazk3user
11	13.827680	192.168.0.101	192.168.0.39	FTP	Response: 230 User fakeuser logged
12	13.827905	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=33 Ack=162 win=!
13	13.828369	192.168.0.39	192.168.0.101	FTP	Request: SYST
14	13.828878	192.168.0.101	192.168.0.39	FTP	Response: 215 UNIX Type: L8
15	13.868033	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=39 Ack=181 win=!
16	15.964049	192.168.0.39	192.168.0.101	FTP	Request: TYPE I
17	15.964227	192.168.0.101	192.168.0.39	FTP	Response: 200 Type set to I.
18	15.964440	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=47 Ack=201 win=!
19	21.044925	192.168.0.39	192.168.0.101	FTP	Request: PASV
20	21.046043	192.168.0.101	192.168.0.39	FTP	Response: 227 Entering Passive Mode
21	21.046293	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=53 Ack=249 win=!
22	21.047403	192.168.0.39	192.168.0.101	FTP	Request: STOR testfile.dat
23	21.060328	192.168.0.101	192.168.0.39	FTP	Response: 150 Opening BINARY mode
24	21.099489	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=72 Ack=308 win=!
25	21.099568	192.168.0.101	192.168.0.39	FTP	Response: 226 Transfer complete.
26	21.099738	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=72 Ack=332 win=!
27	23.631322	192.168.0.39	192.168.0.101	FTP	Request: QUIT
28	23.631433	192.168.0.101	192.168.0.39	FTP	Response: 221-You have transferred
29	23.631752	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=78 Ack=379 win=!
30	23.631769	192.168.0.101	192.168.0.39	FTP	Response: 221-Total traffic for th
31	23.631983	192.168.0.39	192.168.0.101	TCP	32816 > ftp [ACK] Seq=78 Ack=525 win=!
32	23.632002	192.168.0.101	192.168.0.39	TCP	ftp > 32816 [FIN, ACK] Seq=525 Ack=!
33	23.632348	192.168.0.39	192.168.0.101	TCP	32816 > ftp [FIN, ACK] Seq=78 Ack=!

Choose Field Screen - IP

Functional Buttons

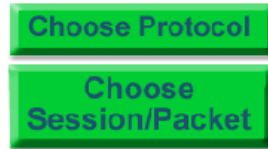
- Choose A Protocol
- Choose Session/Packet
- Ethernet
- TCP
- FTP
- Preamble
- SOF
- Destination MAC Address
- Source MAC Address
- Type/Length
- IP PDU
- CRC
- RFC Link
- IP Version
- Header Length
- Type of Service
- Total Length
- Identification
- R, D, M
- Fragment Offset
- Time – To – Live
- Protocol
- Header Checksum
- Source IP Address
- Destination IP Address
- Options
- TCP PDU



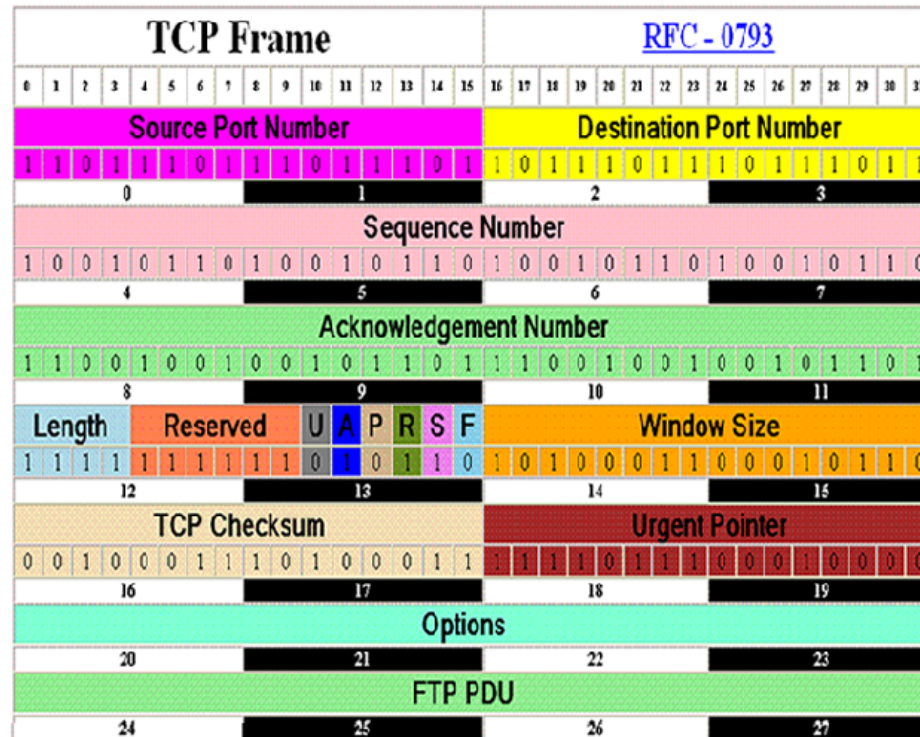
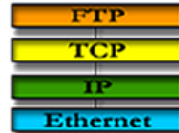
Choose Field Screen - TCP

Functional Buttons

- Choose A Protocol
- Choose Session/Packet
- Ethernet
- IP
- FTP
- Preamble
- SOF
- Destination MAC Address
- Source MAC Address
- Type/Length
- IP PDU
- CRC
- RFC Link
- Source Port Number
- Destination Port Number
- Acknowledgment Number
- Length
- Reserved
- U, A, P, R, S, F
- Window Size
- TCP Checksum
- Urgent Pointer
- Options
- FTP PDU



Ethernet Packet



IP > TCP PDU > Sequence Number for FTP PDU

Field Name: Sequence Number

Purpose and Definition: This number is used by the receiving computer to acknowledge which packets have successfully arrived. This number will be the sequence number of the next packet the receiver is ready to receive.

Field Key: Not applicable

Data values in other bases:

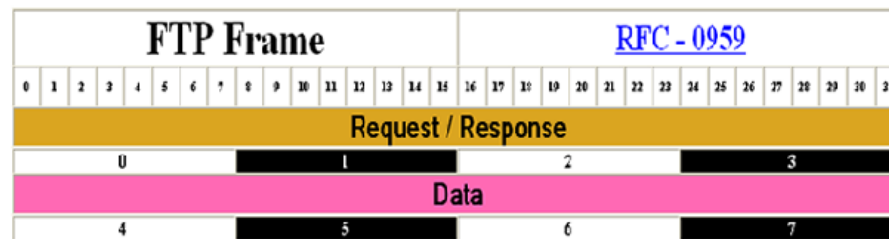
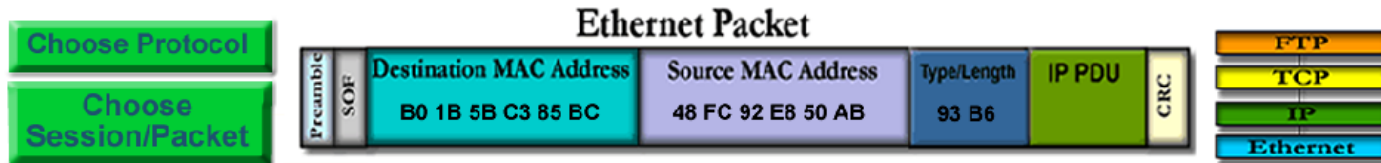
Hexadecimal 81 A5 16 6C
Binary 1001 0110 1001 0110

Hexadecimal 81 A5 16 6C
Binary 1001 0110 1001 0110

Choose Field Screen - FTP

Functional Buttons

- Choose A Protocol
- Choose Session/Packet
- Ethernet
- IP
- TCP
- Preamble
- SOF
- Destination MAC Address
- Source MAC Address
- Type/Length
- IP PDU
- CRC
- RFC Link
- Request/Response
- Data



IP > TCP > FTP Header for the FTP Packet

RFC Link:
<http://www.ietf.org/rfc/rfc0959.txt?number=959>

The first four bytes of the FTP PDU specify access control identifiers, data transfer parameters or file transfer protocol (command codes are shown in parenthesis).

USER NAME (USER)

The argument field is a Telnet string identifying the user. The user identification is that which is required by the server for access to its file system. This command will normally be the first command transmitted by the user after the control connections are made (some servers may require this). Some servers may also require additional identification information in the form of a password and/or an account command. Servers may allow a new USER command to be entered at any point in order to change the access control and/or accounting information.

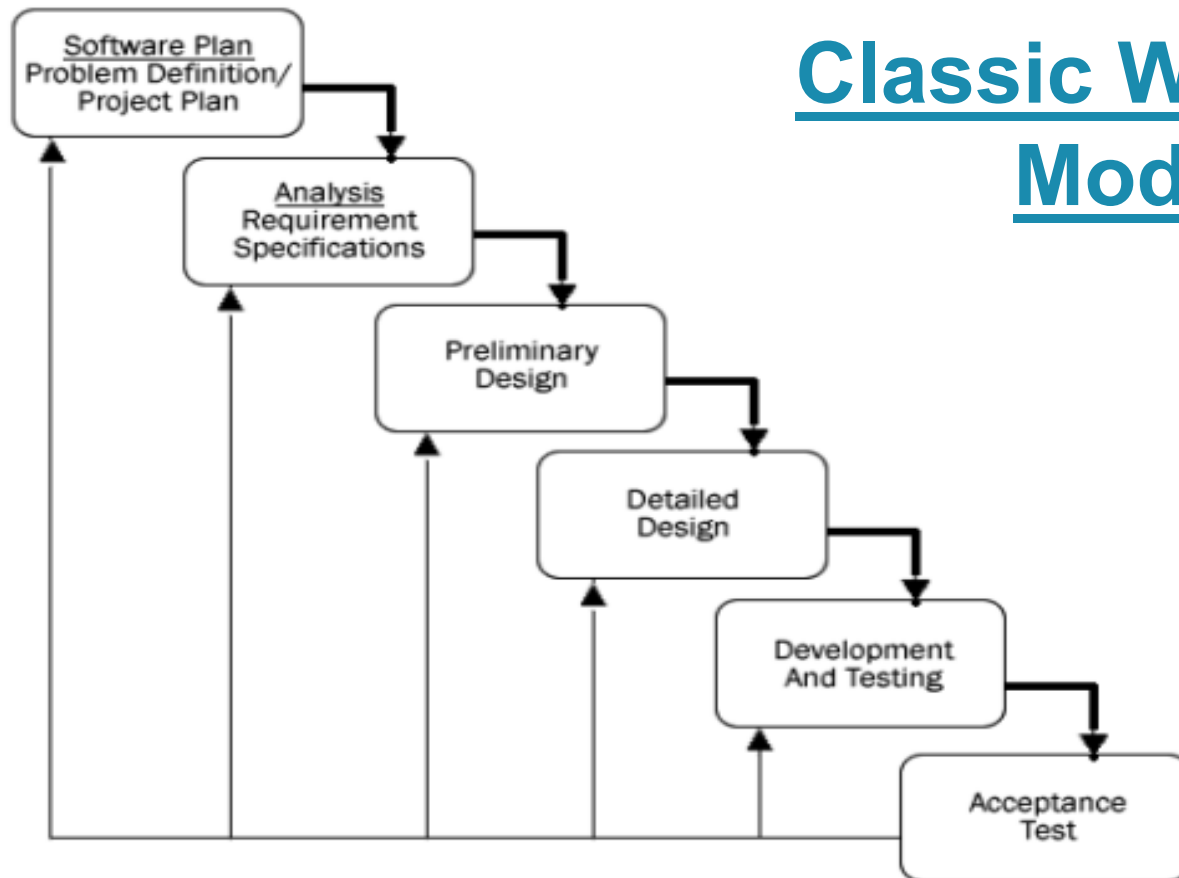
Overview

- Interface Design
- Testing
- **Conclusion**

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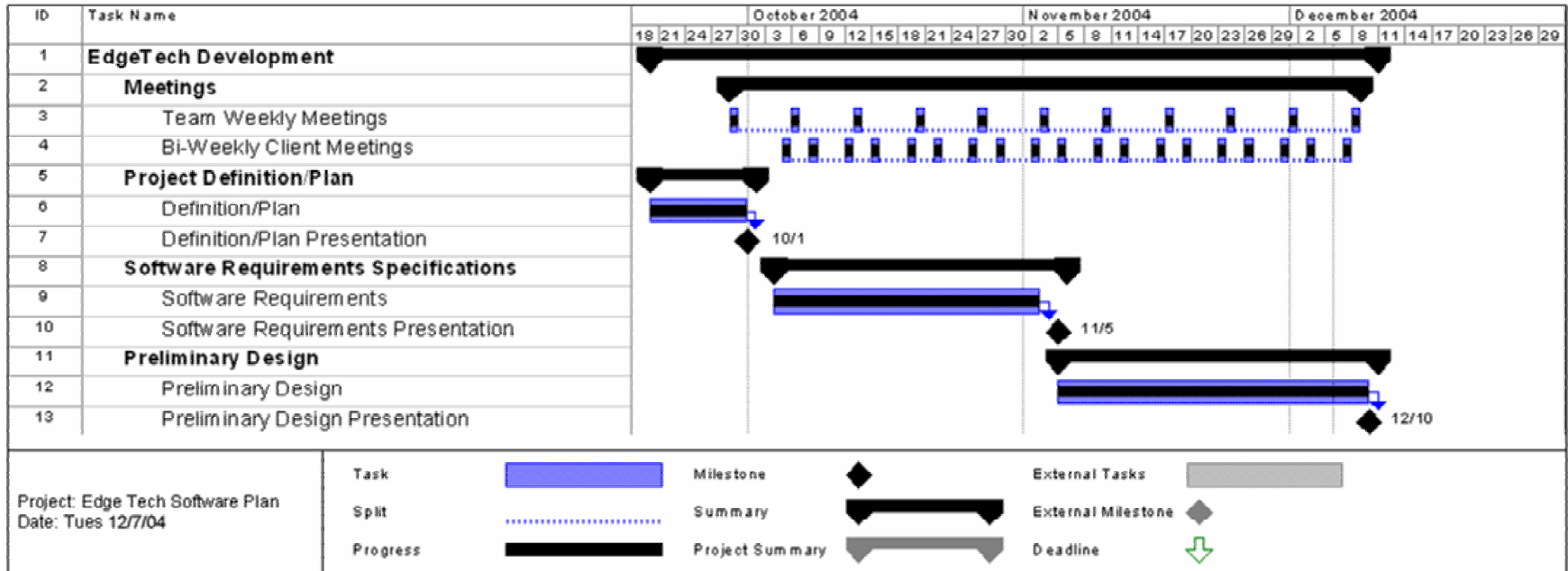
Classic Waterfall Model



Preliminary Design

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- Important Dates Next Semester
 - March 1st – Detailed Design
 - April 21st – Acceptance Test

Preliminary Design

The top banner features a blue and white abstract background with circular patterns and a computer monitor on the right. On the left, there is a circular logo containing three smaller circles. The text 'EdgeTech Development' is prominently displayed in a bold, dark blue font, with the tagline 'We are always on the cutting edge!' underneath in a smaller, lighter blue font.

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Any Questions?

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Thank You!