Welcome

Mr. Ken Swarner

Preliminary Design Presentation
December 5, 2003
Mirage Incorporated

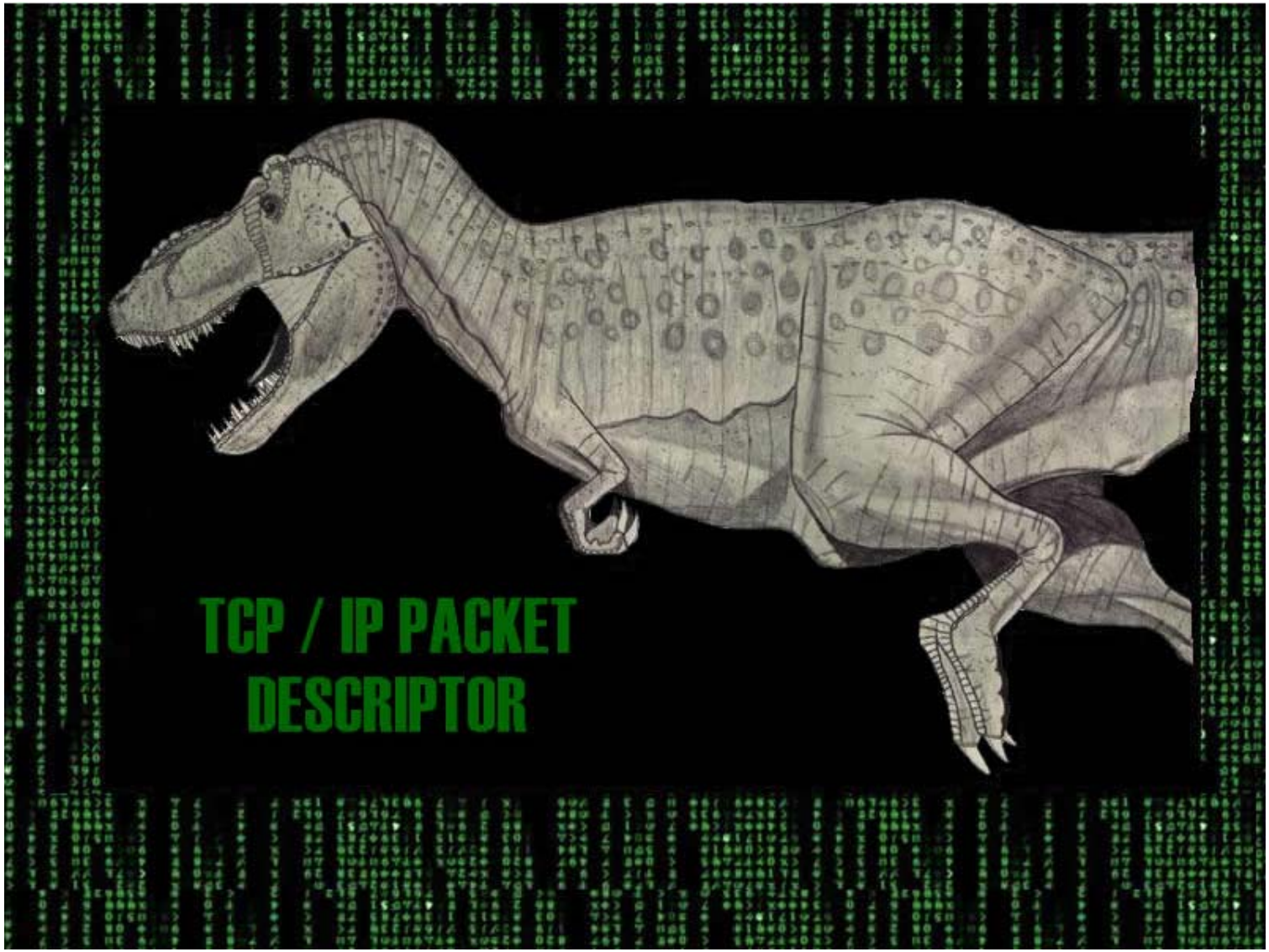
Presented by:

Lauren Englisbe, Introduction and Conclusion
Jayme Gresen, Prototype Overview
Richard Connell, Data Structures

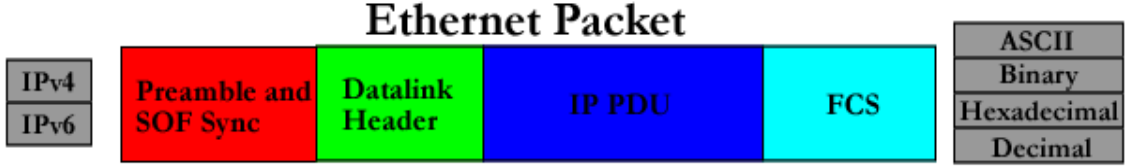
Mirage Incorporated

Paul Aiuto, Systems Administrator
Richard Connell, Webmaster
Lauren Englisbe, Team Leader
Jayme Gresen, Librarian
Jeff Habiniak, Database Administrator

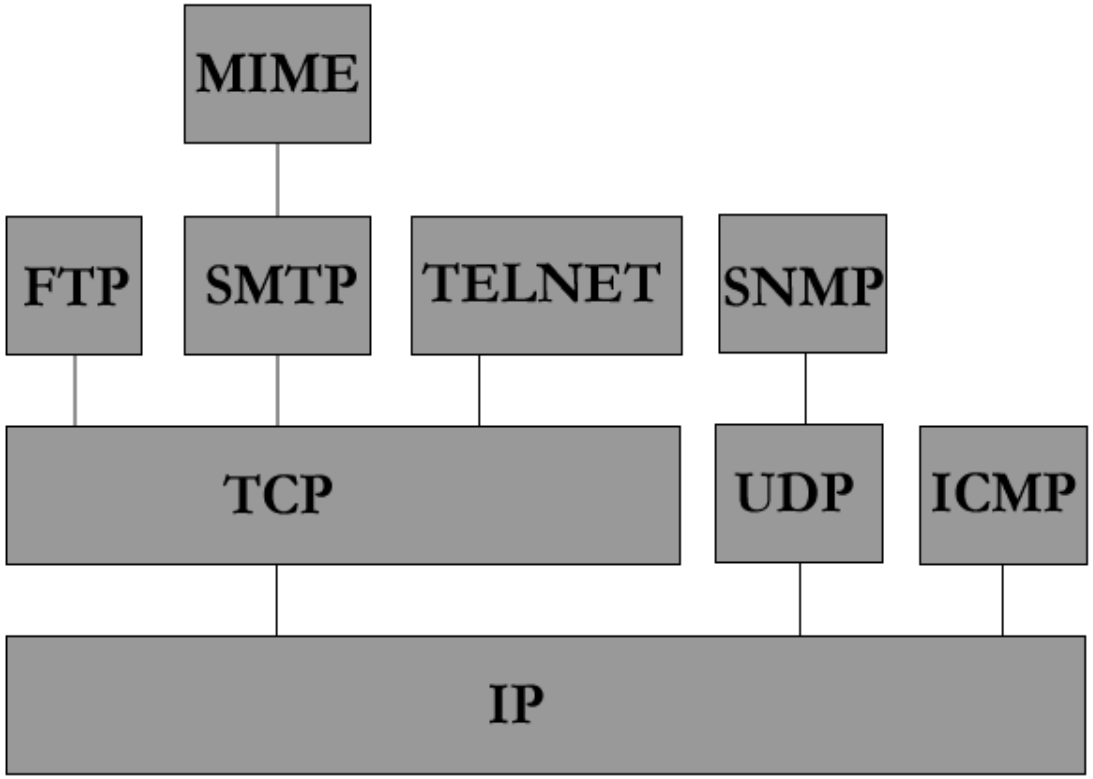
Prototype Overview


TCP / IP PACKET
DESCRIPTOR

Ethernet Packet



Choose a Protocol



Ethernet Packet

IPv4
IPv6

Preamble and SOF Sync	Datalink Header	IP PDU	FCS

ASCII
Binary
Hexadecimal
Decimal

FTP
TCP
IP

Bits
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Version	IHL	Type of Service	Total Length
0 1 0 0	0 1 0 1	0 0 0 1 0 0 0 0	0 0 0 0 0 0 0 0 1 1 0 1 0 0 1
0	1	2	

Identification	Flags	Fragment Offset
1 0 1 0 1 0 1 0 0 1 0 0 0 0 0	0 1 0	0 0 0 0 0 0 0 0 0 0 0 0 0
4	5	6 7

Time to Live	Protocol	Header Checksum
0 1 0 0 0 0 0 0	0 0 0 0 0 1 1 0	0 0 0 0 1 1 1 0 1 0 0 0 0 1 0 1
8	9	10 11

Source IP Address
1 1 0 0 0 0 0 0 1 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 1 0 0 1 1 1
12 13 14 15

Destination IP Address
1 1 0 0 0 0 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 1 0 1
16 17 18 19

Options (if any, variable length, padded with 0's, 40 bytes maximum length)
20 21 22 23

Data (TCP PDU)

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

IP

IP > *Header Checksum* for the selected FTP PDU

Field Name: *Header Checksum*

Purpose and Definition:
The Header Checksum is a 16-bit field. The Checksum is the 16-bit one's complement sum of all 16-bit words in the header. For purposes of computing the checksum, the initial value of its field is zero. When both header checksums are equal, then the header bits are correct. If either checksums vary, then a new, correct packet will need to be sent.

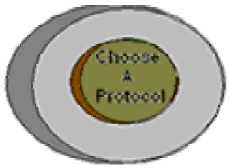
Field Key: not applicable

Data value (hexadecimal): 0E 85

Data values in other bases:

Hexadecimal	0	E	8	5
Binary	0000	1110	1000	0101

Ethernet Packet

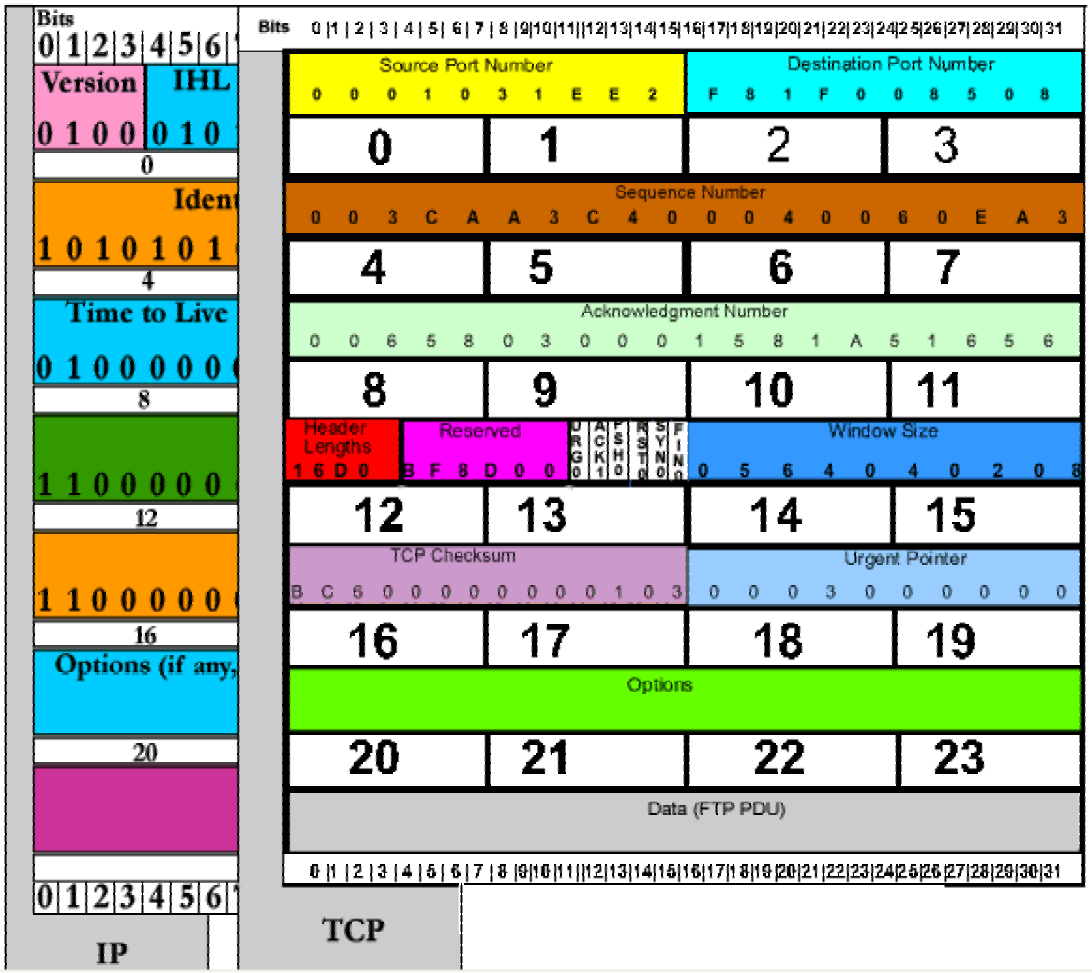


IPv4
IPv6

Preamble and SOF Sync | Datalink Header | IP PDU | FCS

ASCII
Binary
Hexadecimal
Decimal

FTP
TCP
IP



IP > TCP *Source Port* for the selected FTP PDU

Field Name: ***Source Port***

Purpose and Definition:
This 16-bit number represents the name of the application that sent the data in the IP Packet.

Field Key: not applicable

Data value (hexadecimal): 0E 85

Data values in other bases:

Hexadecimal	**8**	**0**	**3**	**0**
Binary	**1000**	**0000**	**0011**	**0000**
Decimal		**128**		**48**
ASCII		**↑**		**0**

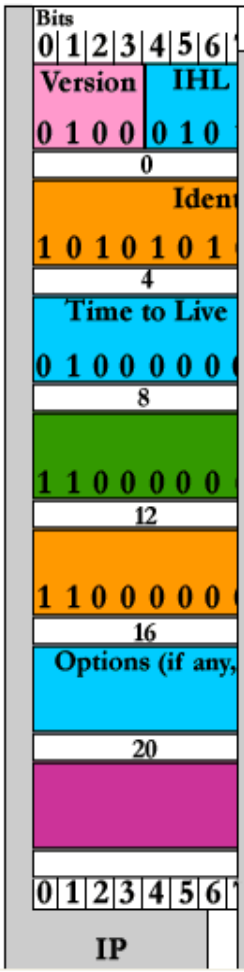
Ethernet Packet

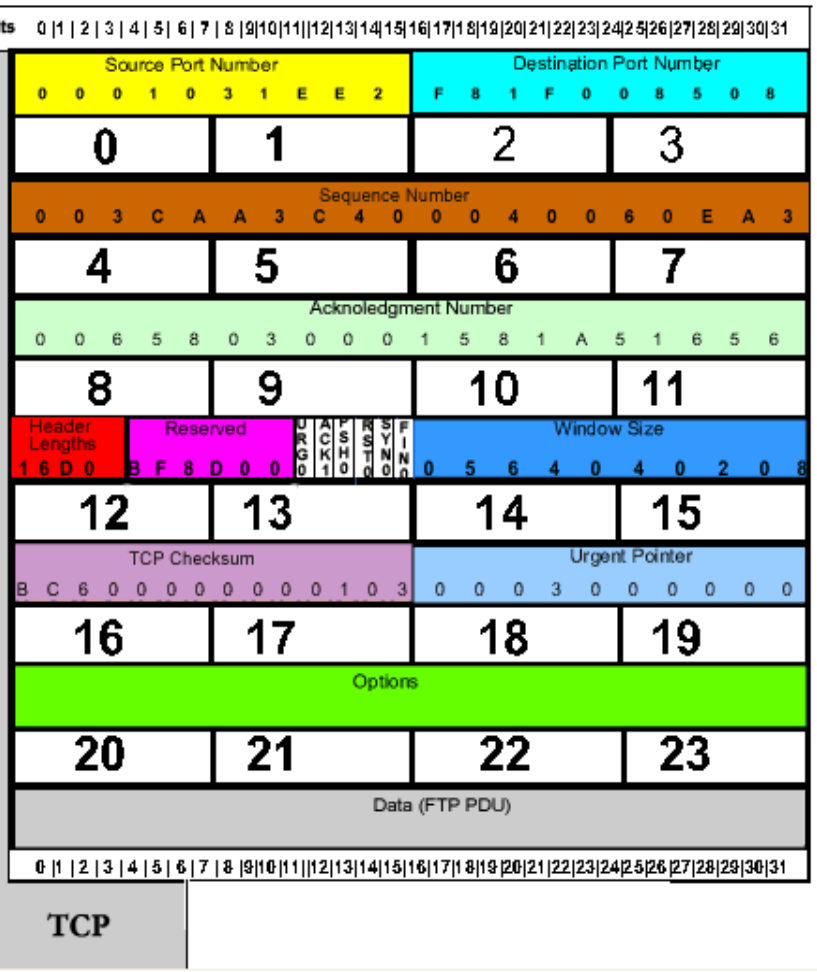
IPv4
IPv6

Preamble and SOF Sync | Datalink Header | IP PDU | FCS

ASCII
Binary
Hexadecimal
Decimal

FTP
TCP
IP





FTP Information Field

RFC Link: http://www.scit.wlv.ac.uk/rfc/rfc9xx/RFC959.html

PASS (Password)
The argument field is a Telnet string specifying the user's password. This command must be immediately preceded by the user name and command, and, for some sites, completes the user's identification for access controls.

What is Contained in the Packet:
Request: PASS
Request Arg: f1a2k3user

Data values (hexadecimal):
50 41 53 53 20 66 31 61 32 6B 33 75 73 65 72 0D 0A

ASCII:	P	A	S	S	SPC
Hexadecimal:	5 0	4 1	5 3	5 3	2 0
Binary:	0101 0000	0100 0001	0101 0011	0101 0011	0010 0000
Decimal:	80	65	83	83	32

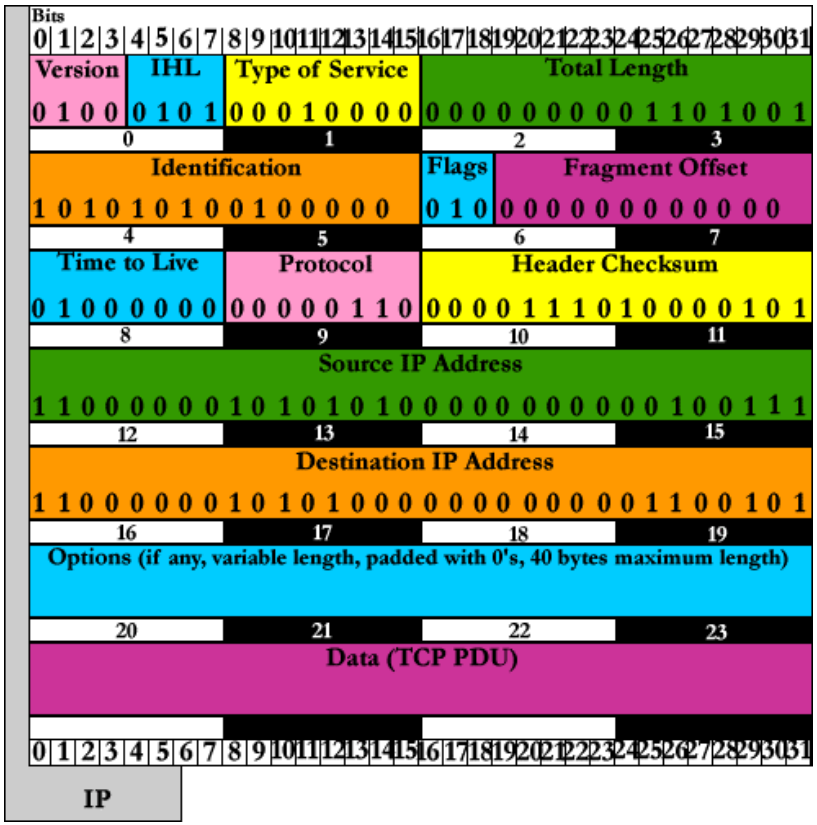
ASCII:	f	1	a	2	k
Hexadecimal:	6 6	3 1	6 1	3 2	6 B
Binary:	0110 0110	0011 0001	0110 0001	0011 0010	0110 1011
Decimal:	102	49	97	50	107

ASCII:	3	u	s	e	r
Hexadecimal:	3 3	7 5	7 3	6 5	7 2
Binary:	0011 0011	0111 0101	0111 0101	0110 0101	0111 0010
Decimal:	51	117	115	101	114

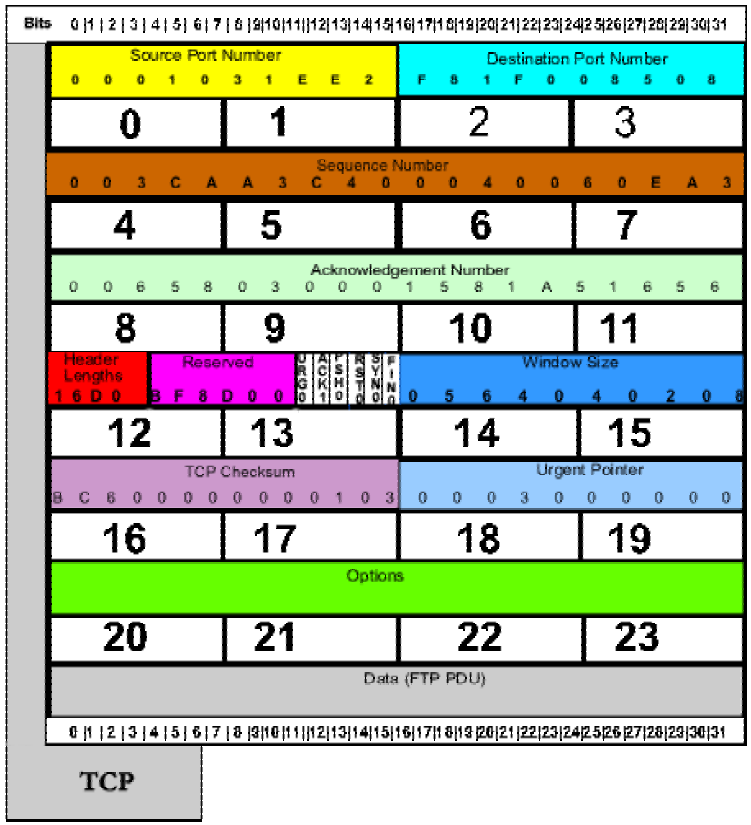
ASCII:	\r	\n
Hexadecimal:	0 D	0 A
Binary:	0000 1101	0000 1010
Decimal:	13	10

Protocol Options

Example of IP PDU



Example of TCP PDU



Information Field Options

IP > TCP *Source Port* for the selected FTP PDU

Field Name: *Source Port*

Purpose and Definition:
This 16-bit number represents the name of the application that sent the data in the IP Packet.

Field Key: not applicable

Data value (hexadecimal): 0E 85

Data values in other bases:

Hexadecimal	**8**	**0**	**3**	**0**
Binary	**1000**	**0000**	**0011**	**0000**
Decimal		**128**		**48**
ASCII		**↑**		**0**

FTP INFORMATION FIELD

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Data Values in Other Bases:

ASCII:	**P**	**A**	**S**	**S**	**SPC**
Hexadecimal:	**5 0**	**4 1**	**5 3**	**5 3**	**2 0**
Binary:	**0101 0000**	**0100 0001**	**0101 0011**	**0101 0011**	**0010 0000**
Decimal:	**80**	**65**	**83**	**83**	**32**
ASCII:	**f**	**1**	**a**	**2**	**k**
Hexadecimal:	**6 6**	**3 1**	**6 1**	**3 2**	**6 B**
Binary:	**0110 0110**	**0011 0001**	**0110 0001**	**0011 0010**	**0110 1011**
Decimal:	**102**	**49**	**97**	**50**	**107**
ASCII:	**3**	**u**	**s**	**e**	**r**
Hexadecimal:	**3 3**	**7 5**	**7 3**	**6 5**	**7 2**
Binary:	**0011 0011**	**0111 0101**	**0111 0101**	**0110 0101**	**0111 0010**
Decimal:	**51**	**117**	**115**	**101**	**114**
ASCII:	**\r**	**\n**			
Hexadecimal:	**0 D**	**0 A**			
Binary:	**0000 1101**	**0000 1010**			
Decimal:	**13**	**10**			

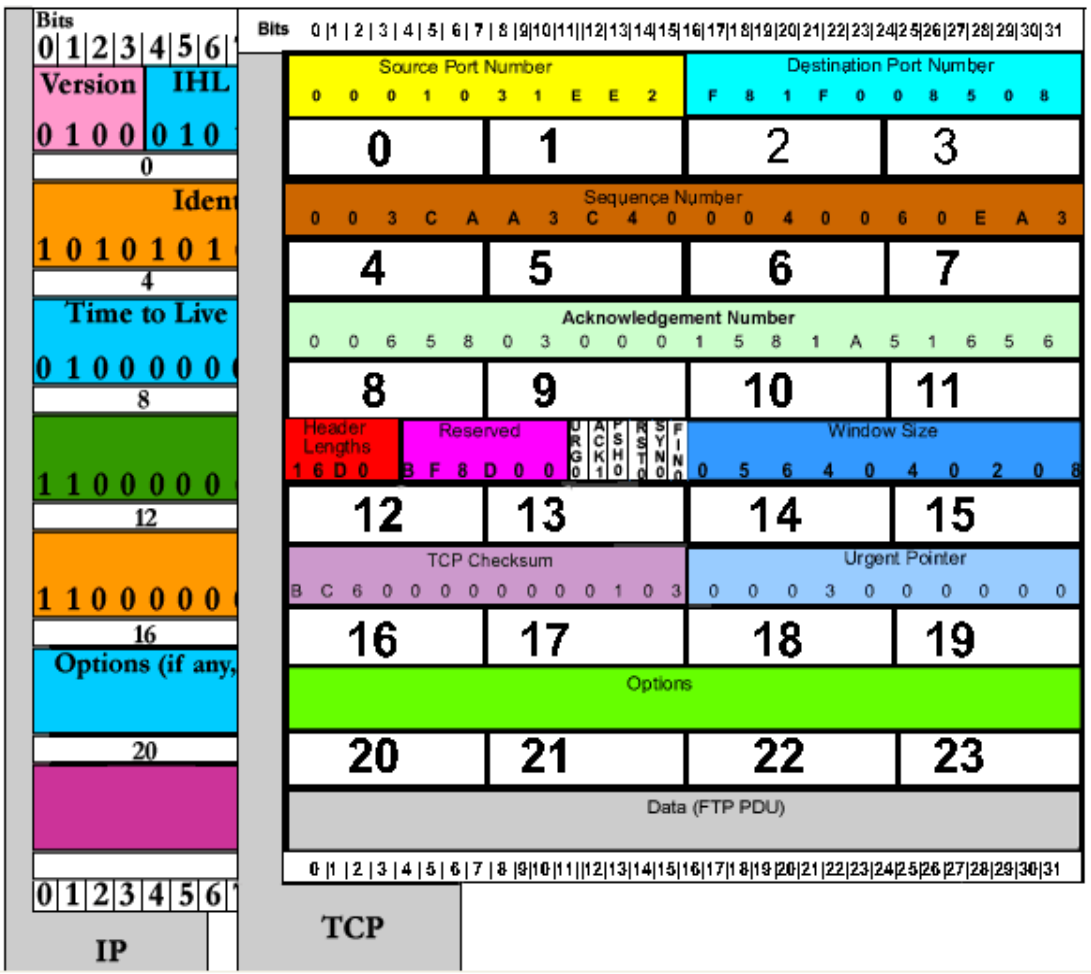
Ethernet Packet

IPv4
IPv6

Preamble and SOF Sync	Datalink Header	IP PDU	FCS

ASCII
Binary
Hexadecimal
Decimal

FTP
TCP
IP



FTP INFORMATION FIELD

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What Is Contained in the Packet:

Request: PASS
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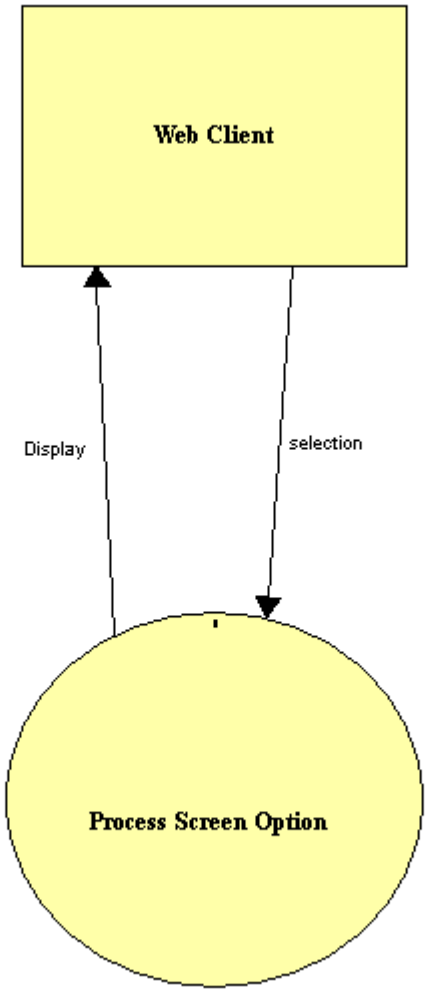
Data Values (hexadecimal):

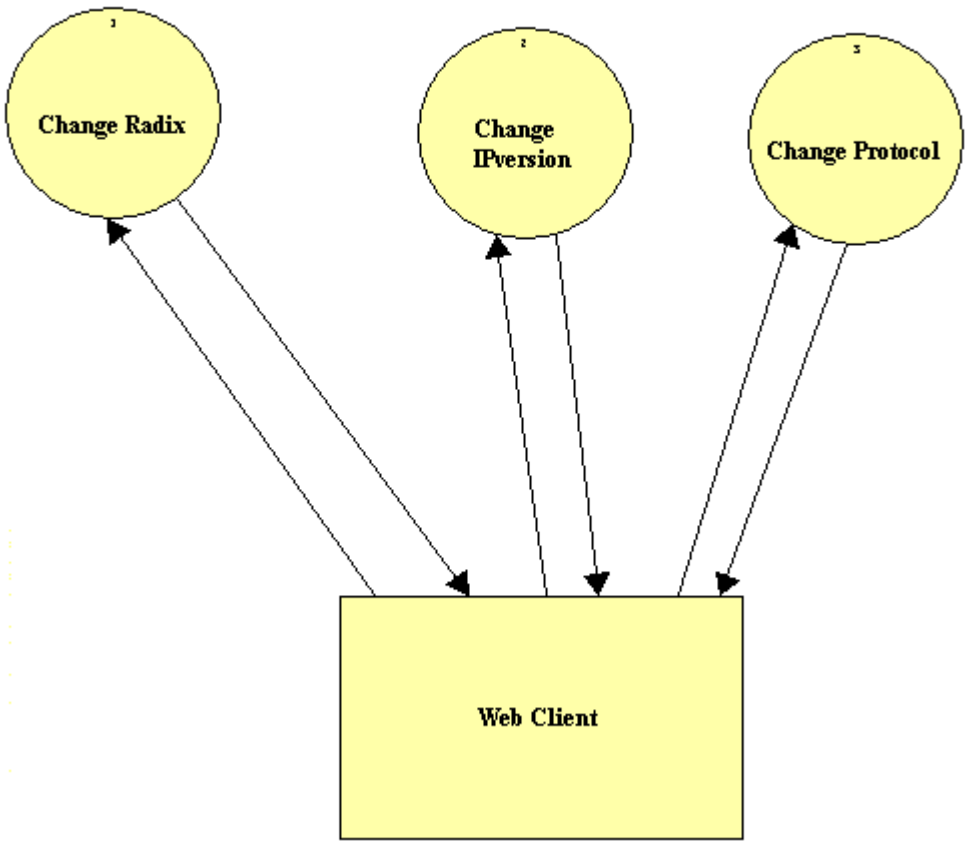
50 41 53 53 20 66 31 61 32 6B 33 75 73 65 72 0D 0A

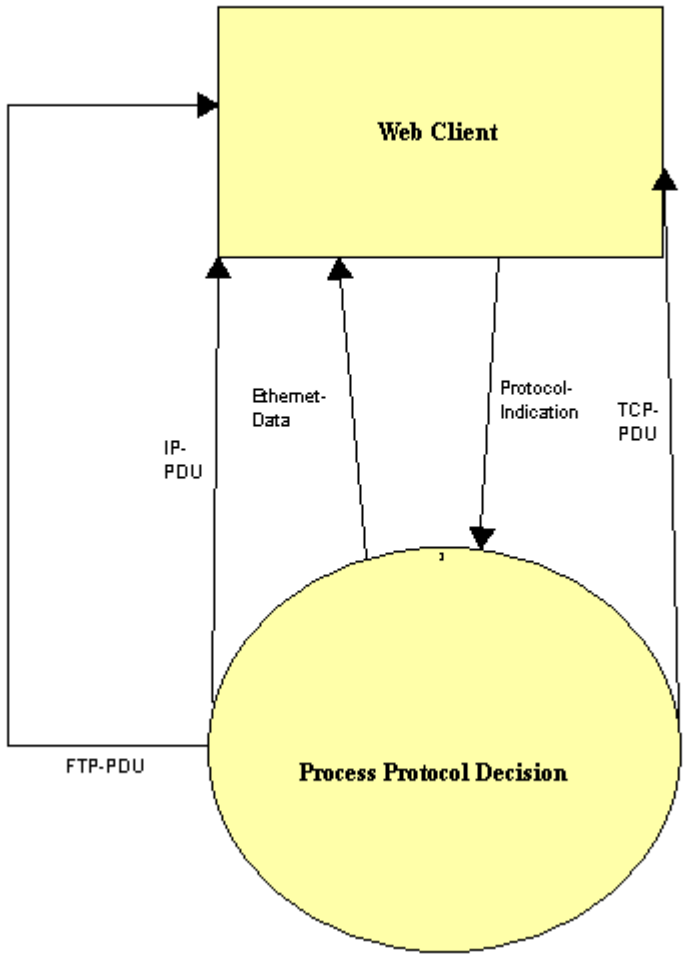
Data Values in Other Bases:

ASCII:	P	A	S	S	SPC
Hexadecimal:	5 0	4 1	5 3	5 3	2 0
Binary:	0101 0000	0100 0001	0101 0011	0101 0011	0010 0000
Decimal:	80	65	83	83	32
ASCII:	f	1	a	2	k
Hexadecimal:	6 6	3 1	6 1	3 2	6 B
Binary:	0110 0110	0011 0001	0110 0001	0011 0010	0110 1011
Decimal:	102	49	97	50	107
ASCII:	3	u	s	e	r
Hexadecimal:	3 3	7 5	7 3	6 5	7 2
Binary:	0011 0011	0111 0101	0111 0101	0110 0101	0111 0010
Decimal:	51	117	115	101	114
ASCII:	\r	\n			
Hexadecimal:	0 D	0 A			
Binary:	0000 1101	0000 1010			
Decimal:	13	10			

Data Structures


Web Client
Display
selection
Process Screen Option


Change Radix
Change IPversion
Change Protocol
Web Client


Web Client
Ethernet-
Data
Protocol-
Indication
TCP-
PDU
IP-
PDU
FTP-PDU
Process Protocol Decision

IP PDU > *Version* for the selected ICMP PDU

Field Name: *Version*
Purpose and Definition: Version is a 4-bit field that indicates the format of the internet header.
Field Key: 4 = IPv4
6 = IPv6
Data value (decimal): 4
Data values in other bases:

Hexadecimal	4
Binary	0110
Decimal	4

IP > ICMP Header > *Checksum* for the selected ICMP PDU

Field Name: *Checksum*

Purpose and Definition: The checksum is the 16-bit one's complement of the one's complement sum of the ICMP message, starting with the ICMP type. For computing the checksum, the checksum field should initially be zero.

Field Key: *Not applicable*

Data value (hexadecimal): C9 15

Data values in other bases:

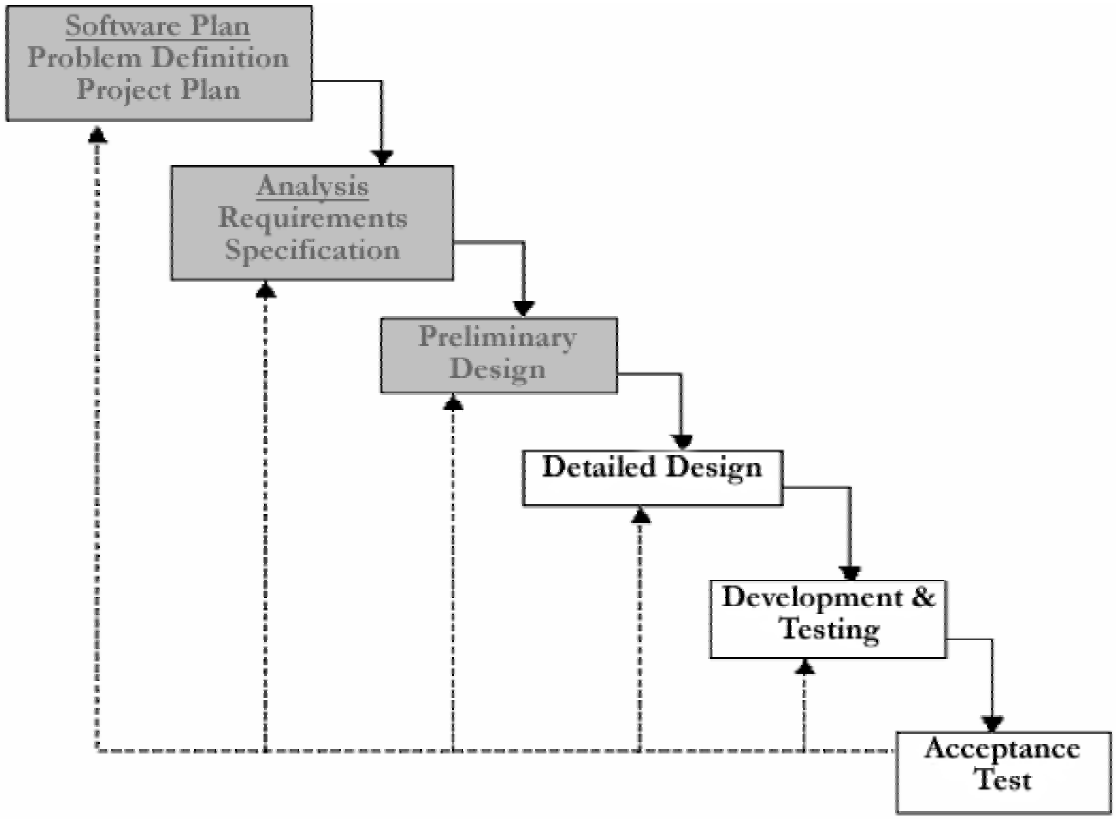
Hexadecimal	C	9	1	5
Binary	1100	1001	0001	0101
Decimal	201		21	
ASCII	↑		!	

Hardware, Software and Human Interfaces

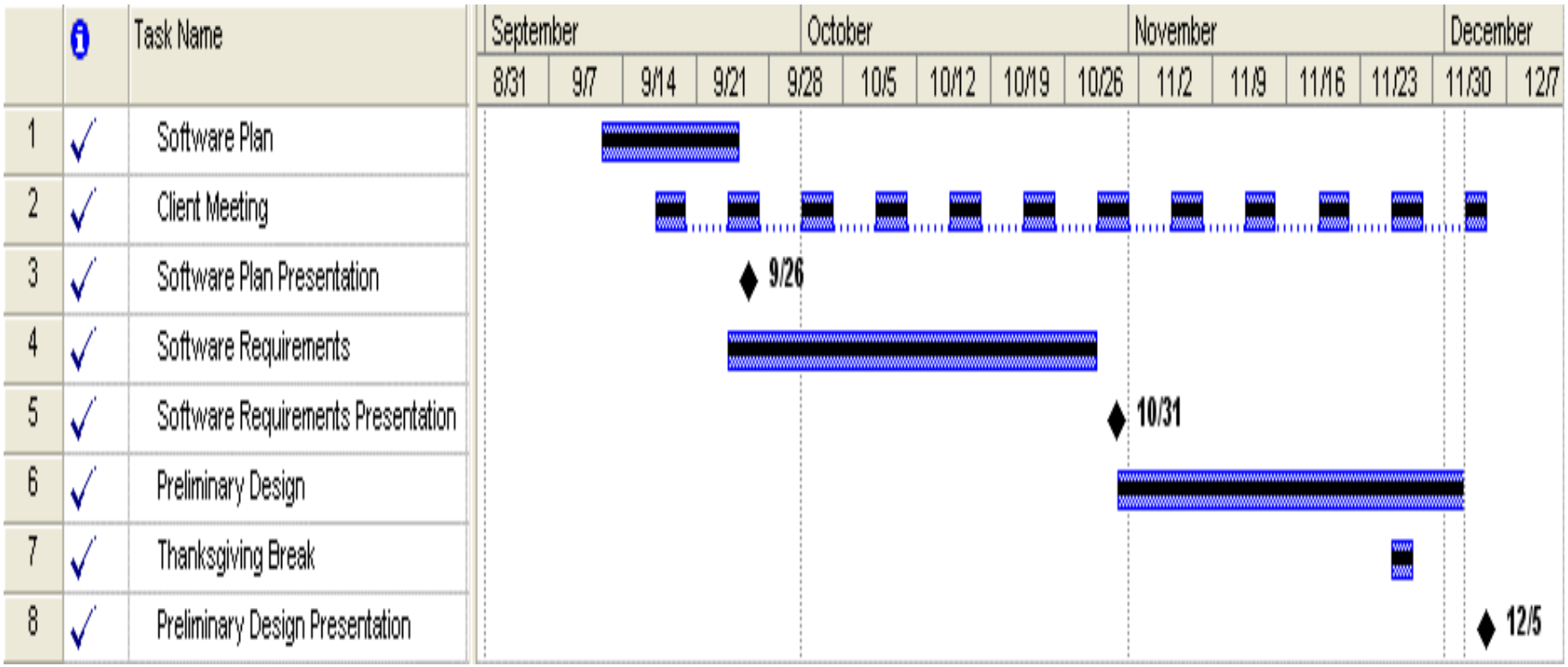
- Macromedia MX – Fireworks, Dreamweaver
- HTML and perhaps PHP (Version 4.1.2)
- Will be hosted as a web site on the Siena College Computer Science Department's Oraserv Linux server (Red Hat version 7.1), running the Apache web server (version 1.3.19)
- Netscape Navigator 7.x or greater and Internet Explorer 5.x or greater web browser

The Next Phase

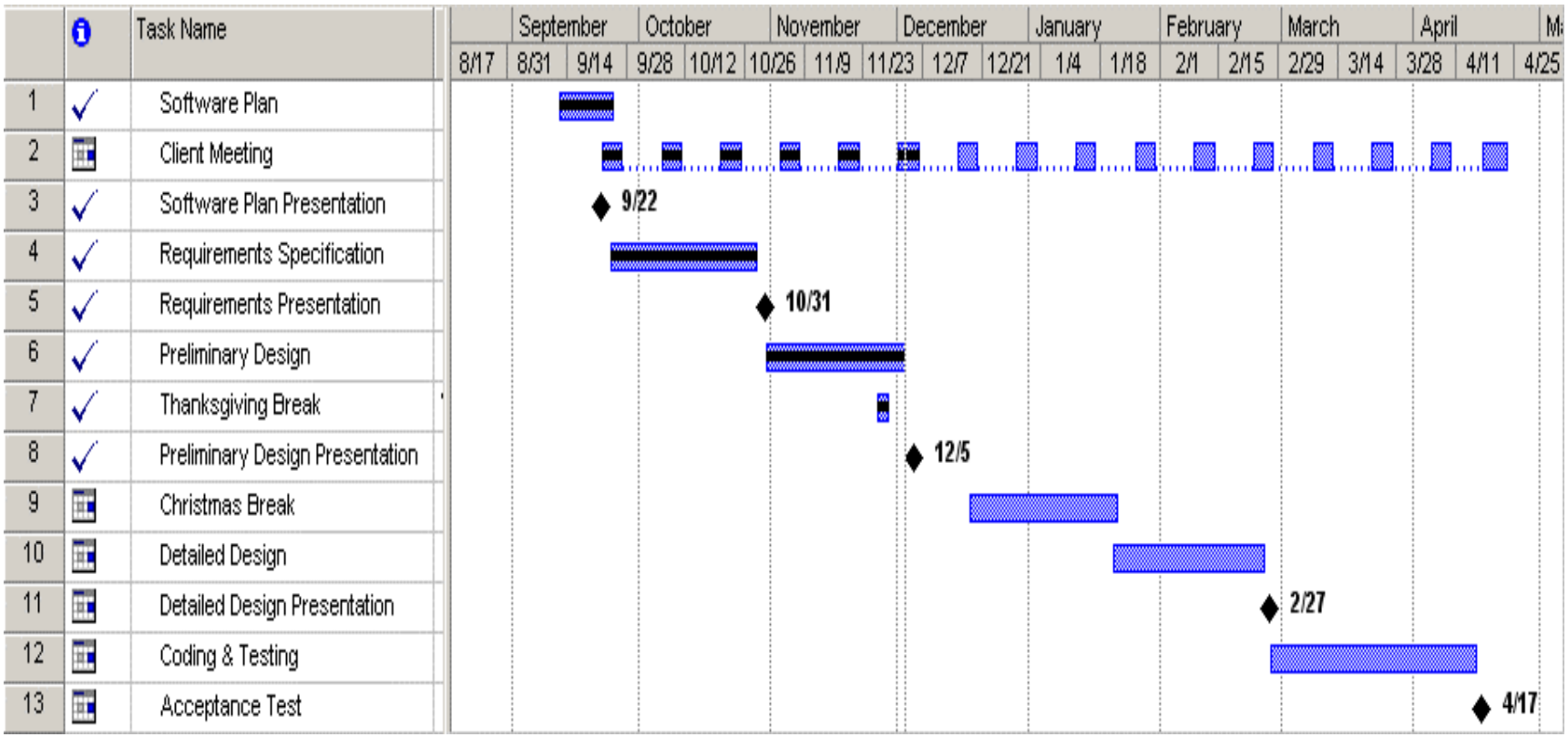
Linear Sequential Model (Classic Waterfall)



Fall Schedule



Year-Long Schedule



The Next Documents

- Detailed Design
  - Documents – February 25, 2004
  - Presentation – February 27, 2004
- Acceptance Test
  - Documents – April 15, 2004
  - Presentation – April 17, 2004

Questions?

Thank you!