

Text analysis of A+, Network+ and Server+ Learning Objective Concepts

Readin in the Tags

```
library(tidyverse)
library(tokenizers)
library("tm")
library("SnowballC")
library("wordcloud")
library("RColorBrewer")

setwd("~/Box/NSA Core Curriculum/Prerequisite Exams")
aplus <- readLines("./aplus.txt")
nplus <- readLines("./nplus.txt")
splus <- readLines("./splus.txt")

aplus <- Corpus(VectorSource(aplus))
nplus <- Corpus(VectorSource(nplus))
splus <- Corpus(VectorSource(splus))
```

A+

```
aplus <- tm_map(aplus, removeWords, stopwords("english"))
aplus <- tm_map(aplus, stemDocument, language = "english")

dtm <- TermDocumentMatrix(aplus)
m <- as.matrix(dtm)
v <- sort(rowSums(m),decreasing=TRUE)
ad <- data.frame(word = names(v),freq=v)

set.seed(1234)
wordcloud(words = ad$word, freq = ad$freq, min.freq = 1,
          max.words=200, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))
```



```
length(ad$word)
```

[1] 498

Network+

```

nplus <- tm_map(nplus, removeWords, stopwords("english"))
nplus <- tm_map(nplus, stemDocument, language = "english")

dtm <- TermDocumentMatrix(nplus)
m <- as.matrix(dtm)
v <- sort(rowSums(m),decreasing=TRUE)
nd <- data.frame(word = names(v),freq=v)

set.seed(1234)
wordcloud(words = nd$word, freq = ad$freq, min.freq = 1,
          max.words=200, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))

```



```
length(nd$word)
```

```
## [1] 494
```

Server+

```

splus <- tm_map(splus, removeWords, stopwords("english"))
splus <- tm_map(splus, stemDocument, language = "english")

dtm <- TermDocumentMatrix(splus)
m <- as.matrix(dtm)
v <- sort(rowSums(m),decreasing=TRUE)
sd <- data.frame(word = names(v),freq=v)

set.seed(1234)
wordcloud(words = sd$word, freq = ad$freq, min.freq = 1,
          max.words=200, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))

```



```
length(sd$word)
```

[1] 266

A+ and Network+ Common Elements

```
and <- merge(ad, nd, by = "word")

set.seed(1234)
wordcloud(words = and$word, freq = and$freq.x, min.freq = 1,
          max.words=200, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))
```

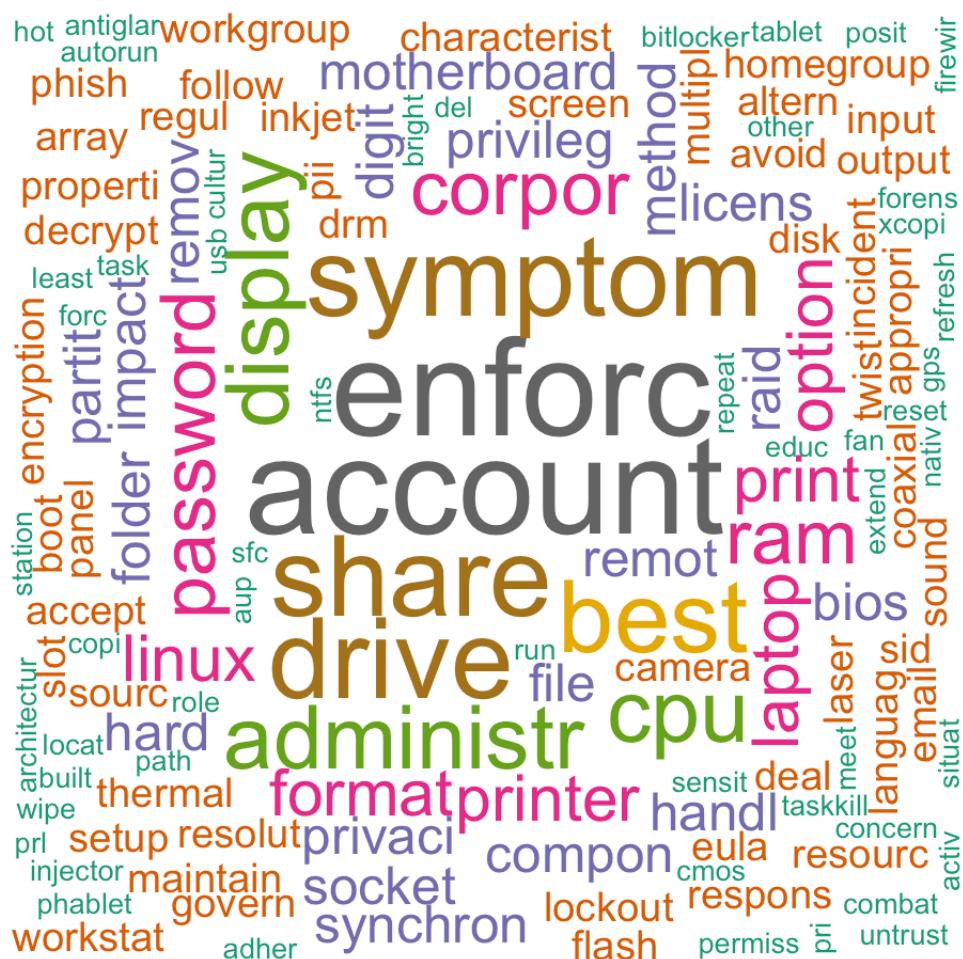


`length(and$word)`

[1] 197

Terms in A+ but not in Network+

```
adonly <- ad[ !(ad$word %in% nd$word), ]  
  
set.seed(1234)  
wordcloud(words = adonly$word, freq = adonly$freq, min.freq = 1,  
          max.words=200, random.order=FALSE, rot.per=0.35,  
          colors=brewer.pal(8, "Dark2"))
```

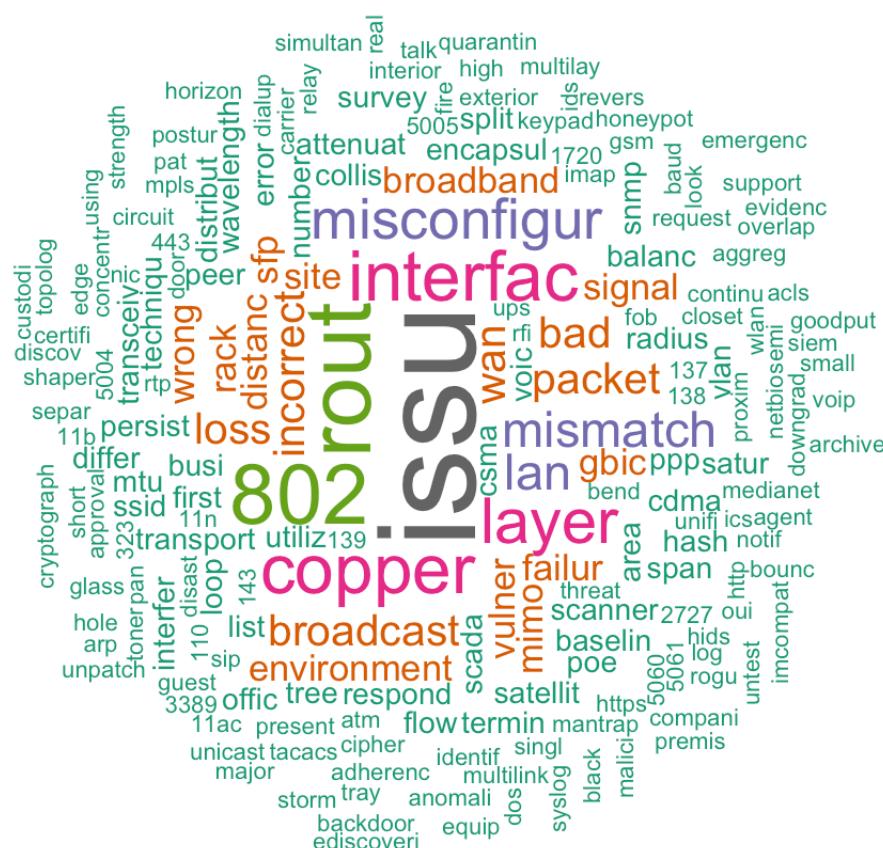


```
length(adonly$word)
```

[1] 301

Terms in Network+ but not in A+

```
ndonly <- nd[!(nd$word %in% ad$word),]  
  
set.seed(1234)  
wordcloud(words = ndonly$word, freq = ndonly$freq, min.freq = 1,  
          max.words=200, random.order=FALSE, rot.per=0.35,  
          colors=brewer.pal(8, "Dark2"))
```



`length(ndonly$word)`

[1] 297

A+ and Server+ Common Elements

```
and <- merge(ad, sd, by = "word")

set.seed(1234)
wordcloud(words = and$word, freq = and$freq.x, min.freq = 1
          max.words=200, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))
```

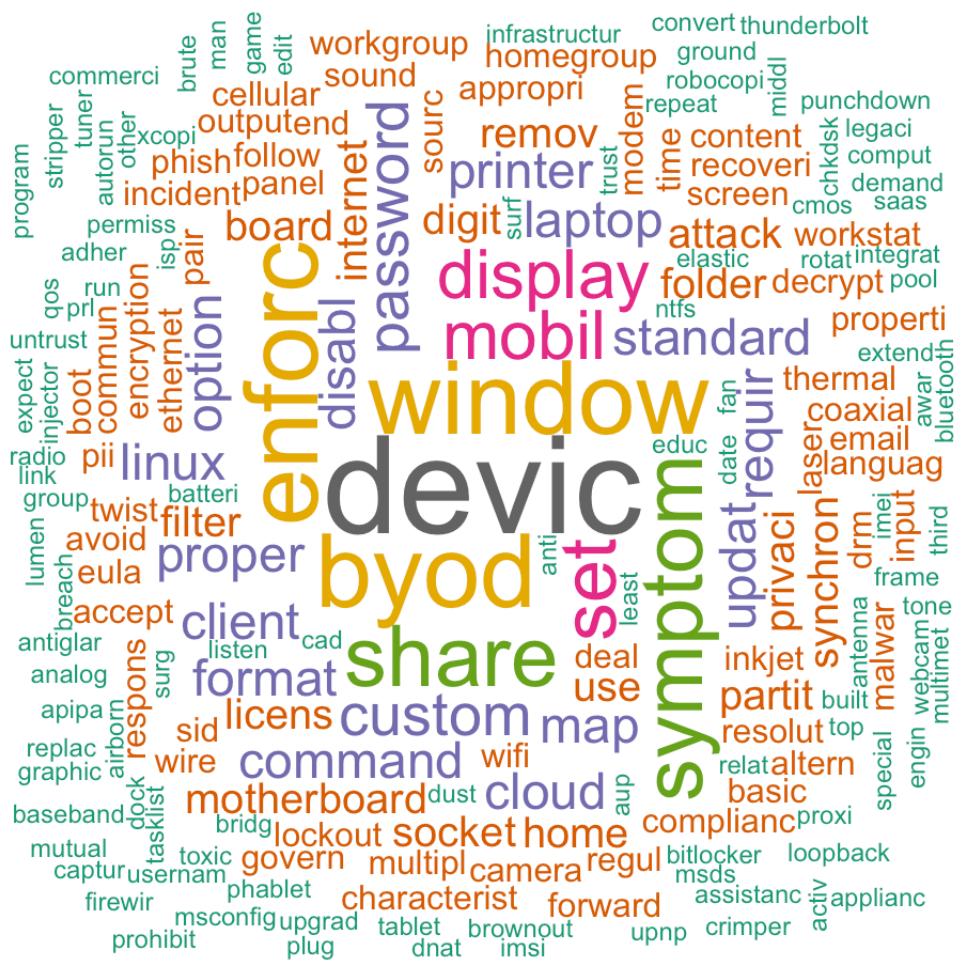


`length(and$word)`

[1] 158

Terms in A+ but not in Server+

```
adonly <- ad[ !(ad$word %in% sd$word), ]  
  
set.seed(1234)  
wordcloud(words = adonly$word, freq = adonly$freq, min.freq = 1,  
          max.words=200, random.order=FALSE, rot.per=0.35,  
          colors=brewer.pal(8, "Dark2"))
```

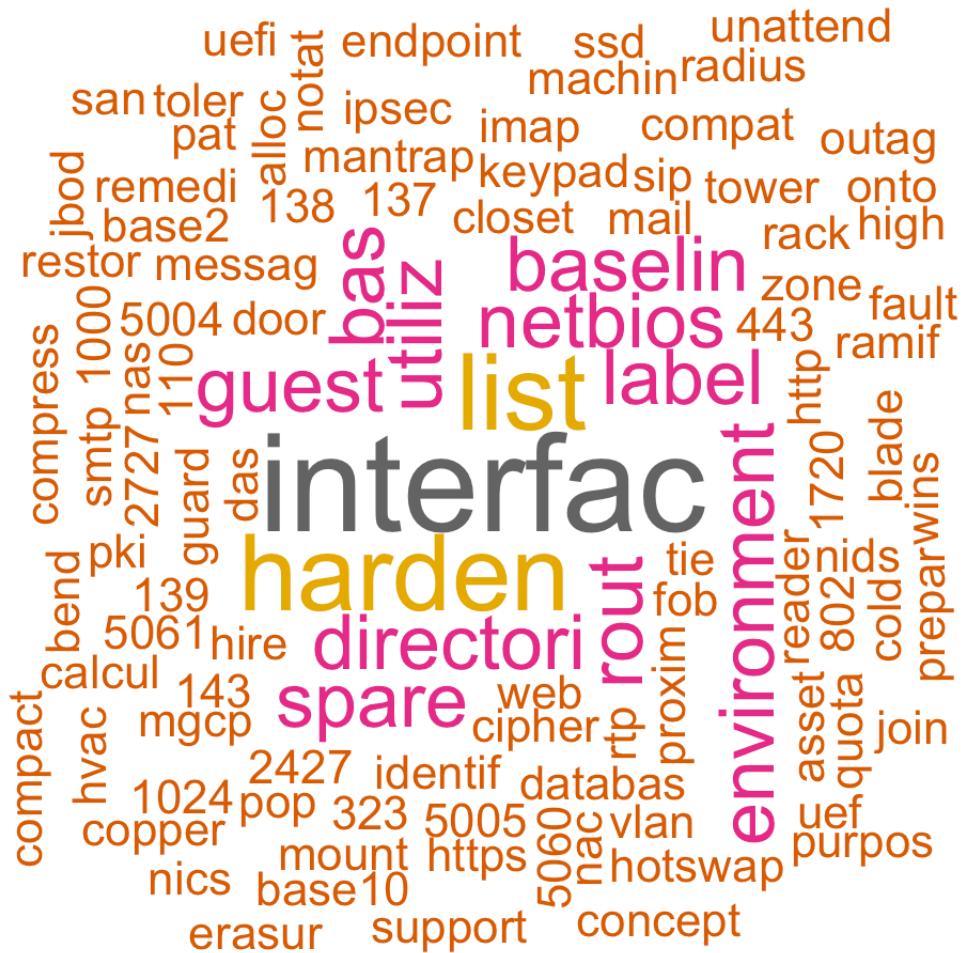


```
length(adonly$word)
```

[1] 340

Terms in Server+ but not in A+

```
sdonly <- sd[ !(sd$word %in% ad$word), ]  
  
set.seed(1234)  
wordcloud(words = sdonly$word, freq = sdonly$freq, min.freq = 1,  
          max.words=200, random.order=FALSE, rot.per=0.35,  
          colors=brewer.pal(8, "Dark2"))
```



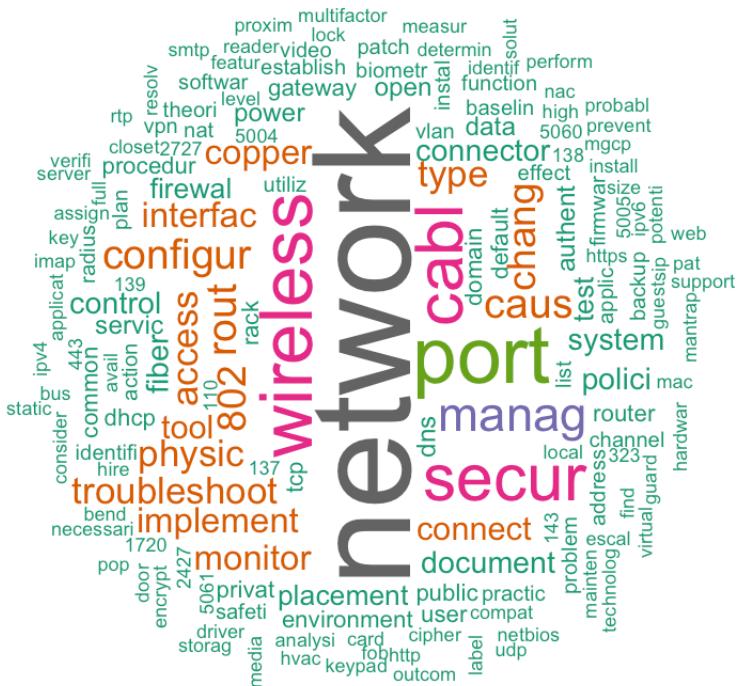
```
length(sdonly$word)
```

```
## [1] 108
```

Network+ and Server+ Common Elements

```
nsd <- merge(nd, sd, by = "word")

set.seed(1234)
wordcloud(words = nsd$word, freq = nsd$freq.x, min.freq = 1,
          max.words=200, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))
```



```
length(nsd$word)
```

[1] 163

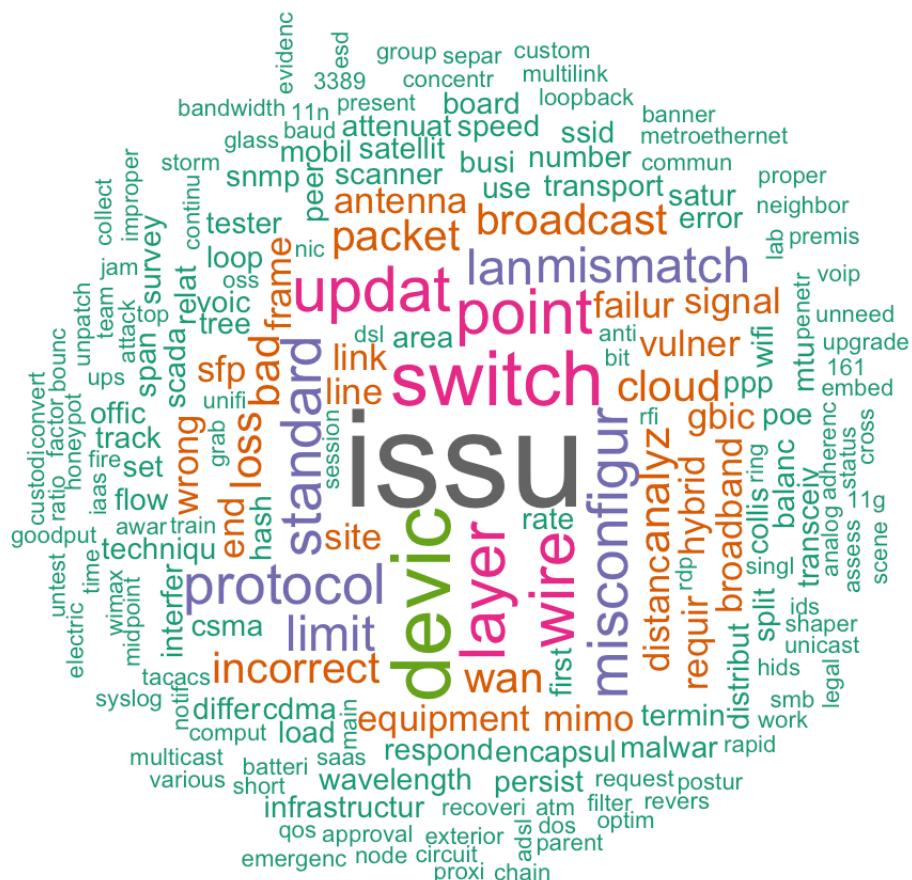
Terms in Network+ but not in Server+

```

ndonly <-nd[ !(nd$word %in% sd$word),]

set.seed(1234)
wordcloud(words = ndonly$word, freq = ndonly$freq, min.freq = 1,
          max.words=200, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))

```

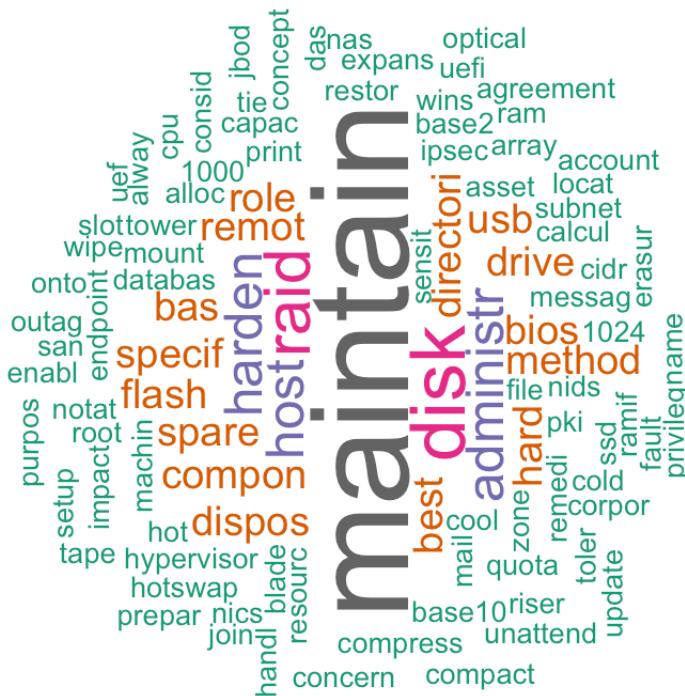


`length(ndonly$word)`

[1] 331

Terms in Server+ but not in Network+

```
sdonly <- sd[ !(sd$word %in% nd$word), ]  
  
set.seed(1234)  
wordcloud(words = sdonly$word, freq = sdonly$freq, min.freq = 1,  
          max.words=200, random.order=FALSE, rot.per=0.35,  
          colors=brewer.pal(8, "Dark2"))
```

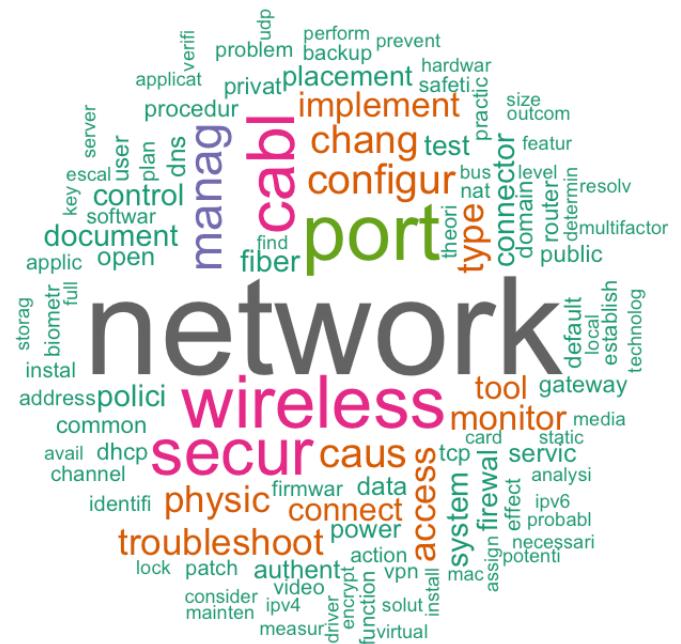


```
length(sdonly$word)
```

[1] 103

Terms in All three exams

```
all <- merge(nd, merge(ad, sd, by = "word"), by = "word")  
  
set.seed(1234)  
wordcloud(words = all$word, freq = all$freq, min.freq = 1,  
          max.words=200, random.order=FALSE, rot.per=0.35,  
          colors=brewer.pal(8, "Dark2"))
```



```
length(all$word)
```

[1] 108

all

	word	freq	freq.x	freq.y
## 1	access	9	2	5
## 2	action	2	2	4
## 3	address	2	3	3
## 4	analysi	1	1	1
## 5	applic	2	2	3
## 6	applicat	1	1	2
## 7	assign	1	1	2
## 8	authent	4	5	3
## 9	avail	1	1	1
## 10	backup	2	1	2
## 11	biometr	2	1	2
## 12	bus	1	1	2
## 13	cabl	22	10	7
## 14	card	1	14	2
## 15	caus	11	3	10
## 16	chang	10	2	2
## 17	channel	2	1	1
## 18	common	3	10	8
## 19	configur	11	5	14
## 20	connect	7	7	1
## 21	connector	6	5	1
## 22	consider	1	1	2
## 23	control	6	2	6
## 24	data	4	3	6
## 25	default	3	1	1
## 26	determin	1	1	3
## 27	dhcp	3	2	1
## 28	dns	4	1	1
## 29	document	6	2	4
## 30	domain	3	2	1
## 31	driver	1	3	1
## 32	effect	2	1	2
## 33	encrypt	1	1	1
## 34	escal	1	1	2
## 35	establish	2	2	4
## 36	featur	1	4	1
## 37	fiber	6	2	1
## 38	find	1	1	2
## 39	firewal	5	5	1
## 40	firmwar	2	4	2
## 41	full	1	2	2

## 42	function	2	2	2
## 43	gateway	3	1	1
## 44	hardwar	1	3	10
## 45	identifi	2	2	4
## 46	implement	8	3	5
## 47	instal	2	3	1
## 48	install	1	1	11
## 49	ipv4	1	1	1
## 50	ipv6	1	1	1
## 51	key	1	1	1
## 52	level	1	1	2
## 53	local	1	3	2
## 54	lock	1	3	1
## 55	mac	1	4	1
## 56	mainten	1	2	1
## 57	manag	14	6	6
## 58	measur	1	2	2
## 59	media	1	1	3
## 60	monitor	8	1	1
## 61	multifactor	1	1	1
## 62	nat	2	1	1
## 63	necessari	1	2	2
## 64	network	53	13	6
## 65	open	4	1	1
## 66	outcom	1	1	2
## 67	patch	2	6	1
## 68	perform	1	2	4
## 69	physic	9	5	9
## 70	placement	5	1	1
## 71	plan	2	1	3
## 72	polici	6	17	5
## 73	port	28	4	14
## 74	potenti	1	1	2
## 75	power	4	6	2
## 76	practic	2	7	2
## 77	prevent	1	1	2
## 78	privat	3	3	1
## 79	probabl	1	1	2
## 80	problem	2	3	13
## 81	procedur	3	2	1
## 82	public	3	4	1
## 83	resolv	1	1	2
## 84	router	3	1	1
## 85	safeti	2	1	1
## 86	secur	22	14	16
## 87	server	1	2	31
## 88	servic	4	2	3
## 89	size	1	1	1
## 90	softwar	2	3	4
## 91	solut	1	1	2
## 92	static	1	2	1
## 93	storag	1	2	8
## 94	system	6	7	2
## 95	tcp	3	1	1
## 96	technolog	1	1	1
## 97	test	5	1	2
## 98	theori	2	2	4
## 99	tool	7	13	4
## 100	troubleshoot	9	18	18
## 101	type	9	15	4
## 102	udp	1	1	1
## 103	user	3	6	1
## 104	verifi	1	1	2
## 105	video	2	5	1
## 106	virtual	1	4	1
## 107	vpn	2	1	1
## 108	wireless	25	7	1