

Mikrotik Implementation for Measuring Quality of Services at Biznet Network

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VP Network

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About Biznet

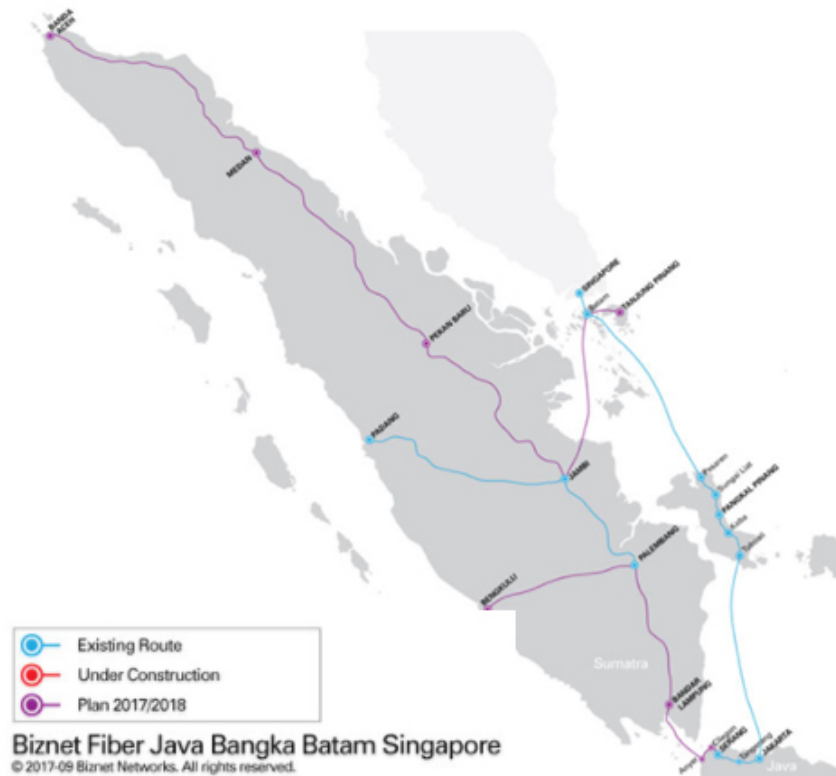


- Biznet berdiri sejak tahun 2000, bermula dari ISP yang fokus di segmen corporate dan bussines market
- Biznet menyediakan layanan **Network, Internet, Hosting** dan **Voices**
- Biznet menyediakan layanan **Biznet Metro**, dan menjadi Carrier Grade Metro Ethernet Network pertama di Indonesia (2006)
- Biznet meluncurkan **Biznet Metro FTTH**, jaringan serat optik yang melayani sampai ke wilayah perumahan, pertama di Asia Tenggara (2007)

About Biznet



- Biznet Fiber Singapore - Java Bali



Connecting Indonesia.

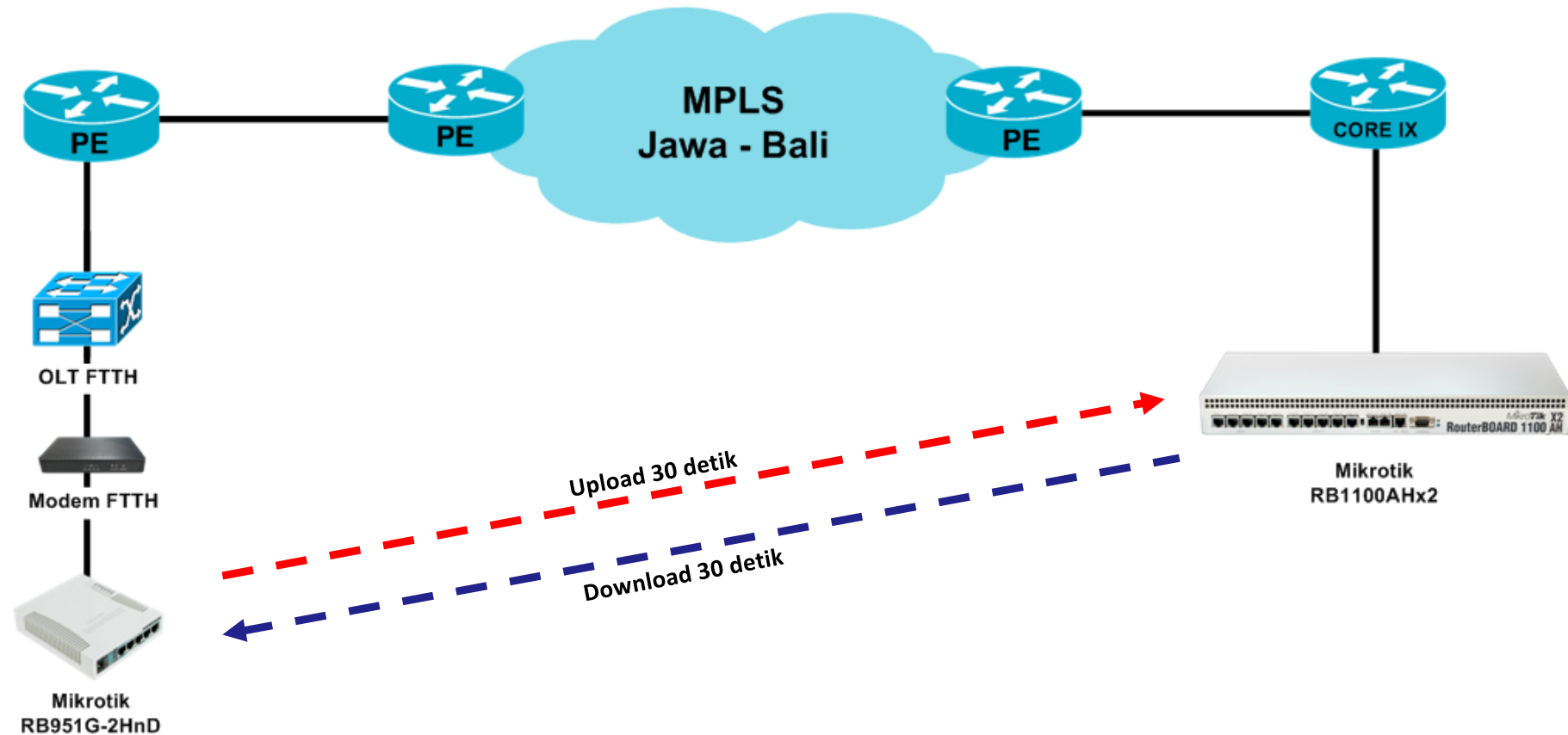
Bagaimana mengetahui kualitas service layanan pelanggan lebih dari 50 kota secara akurat ?

Automatic Bandwidth Test

Network Diagram Mikrotik BTest



Speed Test ke Jakarta

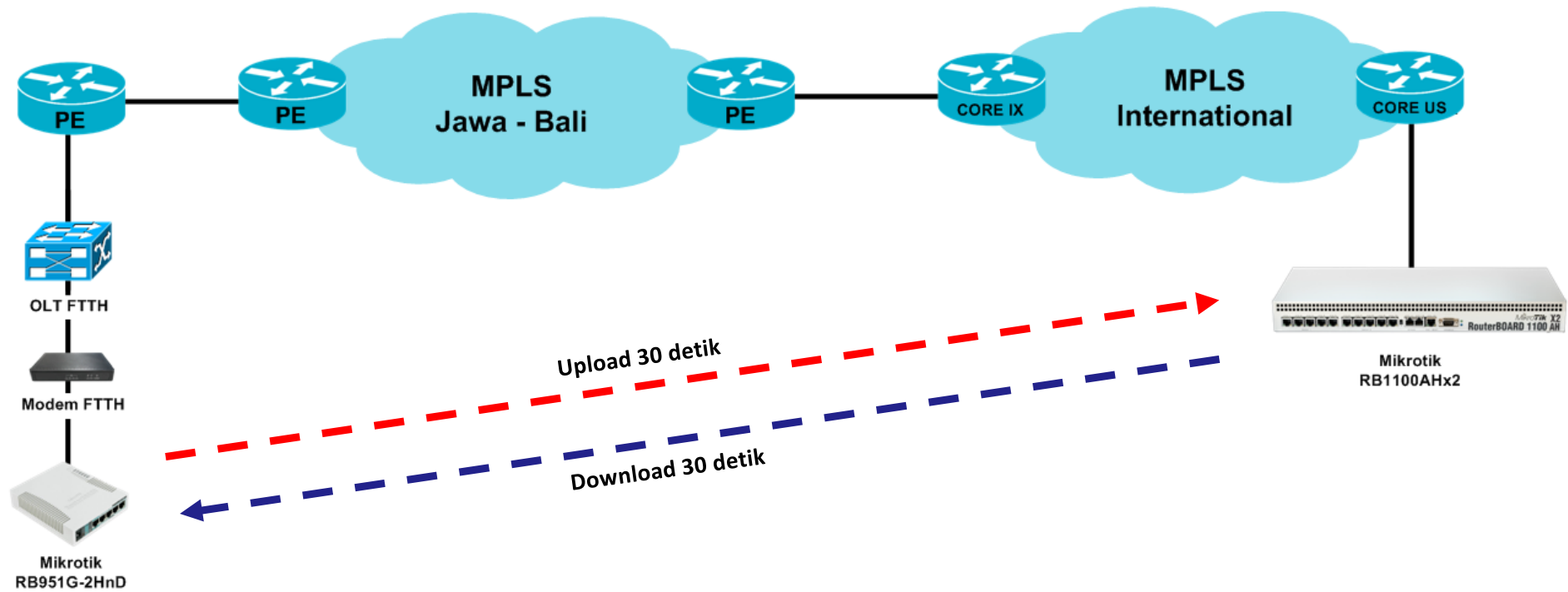


Connecting Indonesia.

Network Diagram Mikrotik BTest

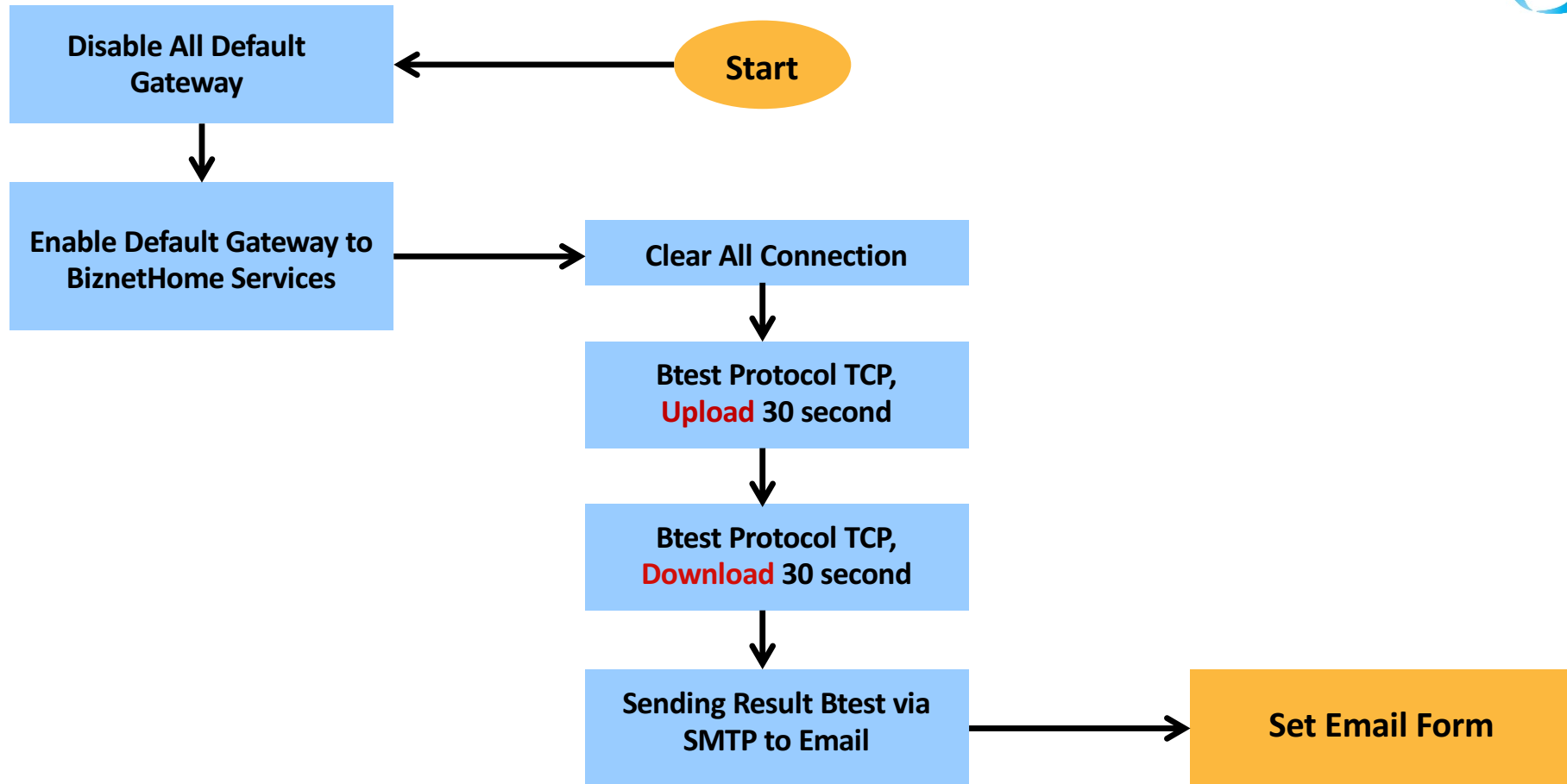


Speed Test ke US



Connecting Indonesia.

Flow Mikrotik Bandwidth Test



Script Sample BiznetHome



Script <metrou>

Name:

Owner:

Policy:

<input checked="" type="checkbox"/> ftp	<input checked="" type="checkbox"/> reboot
<input checked="" type="checkbox"/> read	<input checked="" type="checkbox"/> write
<input checked="" type="checkbox"/> policy	<input checked="" type="checkbox"/> test
<input checked="" type="checkbox"/> password	<input checked="" type="checkbox"/> sniff
<input checked="" type="checkbox"/> sensitive	<input checked="" type="checkbox"/> romon
<input type="checkbox"/> dude	

Last Time Started:

Run Count:

Source:

```
local kambing
local kambingA
local kambingB
local kambingC
local sysname [/system identity get name]
local datetime "$[/system clock get date] $[/system clock get time]"
/ip route disable [ /ip route find comment=gw-home]
log info "$sysname - Disable Connection Home"
/ip route enable [ /ip route find comment=gw-metro]
log info "$sysname - Enable Connection Metro"
/tool e-mail set from=speedtest_metro@biznetnetworks.com
log info "$sysname - Set From speedtest_metro"
/ip firewall connection (remove [find])
log info "$sysname - CLEAR Connection Done"
log info "$sysname - Bandwidth-test start"
/tool bandwidth-test $ipserver protocol=tcp tcp-connection-count=100 direction=transmit duration=30s user=admin password=admin do={
set ucingA ($"x-current" / 1000)
set ucingB ($ucingA / 1000 * 1000)
set ucingC ($ucingA - $ucingB)
set ucingB ($ucingB / 1000)
set ucing "$ucingB.$ucingC"
}
log info "$sysname - Bandwidth Upload Done"
/tool bandwidth-test $ipserver protocol=tcp direction=receive duration=30s user=admin password=admin do={
```

1. Disable route semua default route
2. Enable route menggunakan gateway BiznetHome
3. Set email sender menjadi
speedtest_home@biznetnetworks.com
4. Clear all connection (mencegah koneksi idle di gateway sebelumnya)
5. Test Download 30 detik
6. Test Upload 30 Detik
7. Mengirimkan hasilnya melalui email via SMTP

Script & Scheduler



Script List

Scripts

Jobs

Environment

Run Script

Find

Name	Owner	Last Time Started	Run Count
uploadrsc	siddiq	Sep/27/2017 05:07:00	76
removefile	siddiq	Sep/27/2017 05:10:00	76
metrousg	siddiq	Sep/27/2017 13:54:00	911
metrosg	siddiq	Sep/27/2017 14:47:00	505
metrojkt	siddiq	Sep/27/2017 15:10:00	1826
homeus	siddiq	Sep/27/2017 13:56:00	910
homesg	siddiq	Sep/27/2017 14:49:00	504
homejkt	siddiq	Sep/27/2017 15:12:00	1823
autobackup	siddiq	Sep/27/2017 05:00:00	76
Simulasi-METRONET-US	siddiq		0
Simulasi-METRONET-TECHNO	siddiq		0
Simulasi-METRONET-SG	siddiq		0
Simulasi-BIZNETHOME-US	siddiq		0
Simulasi-BIZNETHOME-TECHNO	siddiq		0
Simulasi-BIZNETHOME-SG	siddiq		0

15 items (1 selected)

Scheduler

Find

Name	Start Date	Start Time	Interval	Owner	Run Count	Next Run
Home-US	Jun/09/2017	15:56:00	02:00:00	admin	1129	
Metro-US	Jun/09/2017	15:54:00	02:00:00	admin	1129	
Home-SG	Jun/09/2016	15:49:00	01:00:00	siddiq	504	
Metro-SG	Jun/09/2016	15:47:00	01:00:00	siddiq	504	
Home	Jun/09/2017	15:12:00	01:00:00	admin	2056	
Metro	Jun/09/2017	15:10:00	01:00:00	admin	2056	
removefile	Jan/30/2017	05:10:00	1d 00:00:00	admin	86	
uploadrsc	Jan/30/2017	05:07:00	1d 00:00:00	admin	86	
uploadbackup	Jan/30/2017	05:05:00	1d 00:00:00	admin	86	
autobackup	Jan/30/2017	05:00:00	1d 00:00:00	admin	86	

10 items

Client bertugas melakukan pengetesan ke 3 Server yaitu :

- Server US = Setiap 2 Jam
- Server SG = Setiap 1 Jam
- Server JKT = Setiap 1 Jam

Setiap Script minimal memiliki Jeda 1 menit untuk mencegah crash antar script

Timeline



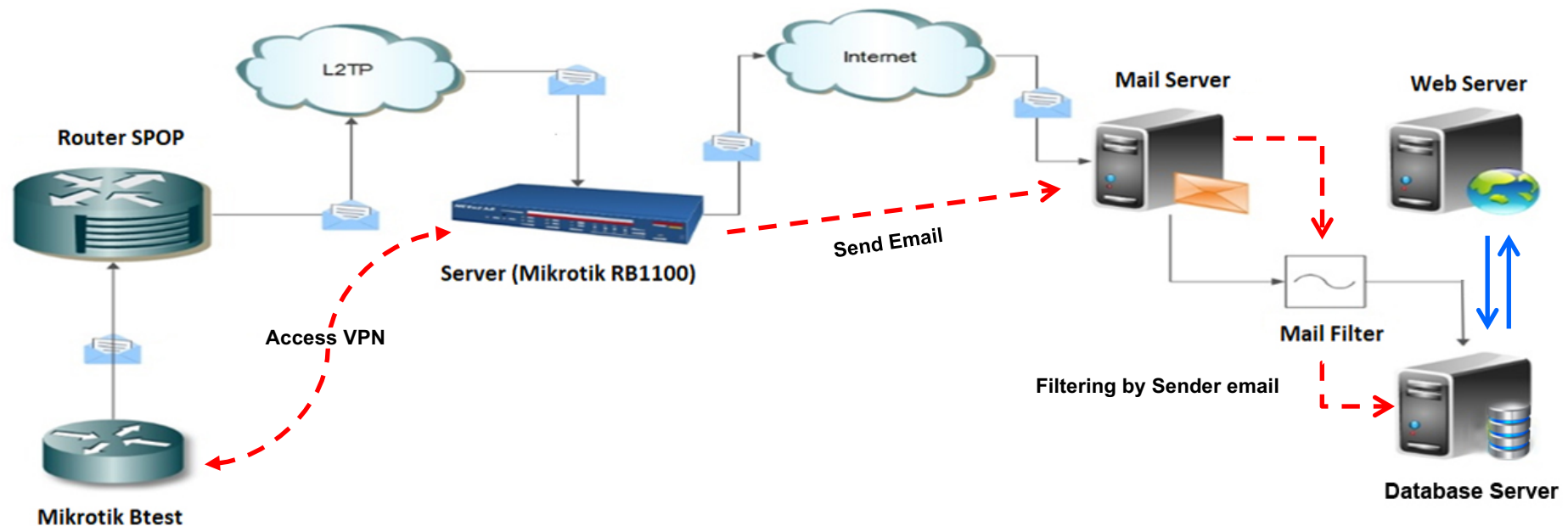
Untuk mencegah bentrokan dalam setiap pengetesan, dan mencegah CPU server yang tinggi, dilakukan pengaturan waktu pengetesan, atau bisa juga disebut antrian

Running Time Execute Script			
TIME	State	SPOP	Service
00:01	Jabar	Bekasi	Metro
00:02	Bali	Ubud	Metro
00:03	Jateng	Kendal	Metro
00:04	Bali	Ubud	Home
00:05	Jateng	Kendal	Home
00:06	Jabar	Sukabumi	Metro
00:07	Jabar	Bekasi	Home
00:08	Jabar	Sukabumi	Home
00:09	Jabar	Cikampek	Metro
00:10	Jabar	Indramayu	Metro
00:11	Jabar	Karawang	Metro
00:12	Jabar	Indramayu	Home
00:13	Jabar	Karawang	Home
00:14	Sumatera	Batam	Metro
00:15	Jateng	Solo	Metro
00:16	Sumatera	Batam	Home
00:17	Jateng	Solo	Home
00:18	Jabar	Bandung	Metro
00:19	Jatim	Banyuwangi	Metro
00:20	Jabar	Bandung	Home
00:21	Jatim	Banyuwangi	Home
00:22	Jabar	Cirebon	Metro
00:23			
00:24	Jabar	Cirebon	Home
00:25	Jateng	Pekalongan	Metro
00:26	Jatim	Kediri	Metro

Running Time Execute Script			
TIME	State	SPOP	Service
00:01	Jakarta	Maspion	MEtro
00:02	Jabar	Sukabumi	Metro
00:03	Jakarta	Maspion	Home
00:04	Jabar	Sukabumi	Home
00:05	Jakarta	Kirana	Metro
00:06	Jabar	Bandung	Metro
00:07	Jakarta	Kirana	Home
00:08	Jabar	Bandung	Home
00:09	Jateng	Solo	Metro
00:10	Jakarta	Midplaza	Metro
00:11	Jateng	Solo	home
00:12	Jakarta	Midplaza	Home
00:13	Jateng	Pemalang	Metro
00:14	Jateng	Ungaran	Metro
00:15	Jateng	Pemalang	Home
00:16	Jabar	Cirebon	Home
00:17	Jateng	Ungaran	Home
00:18	Jabar	Cirebon	Metro
00:19	Jabar	Karawang	Metro
00:20	Jatim	Malang	Metro
00:21	Jabar	Karawang	Home
00:22	Jatim	Malang	Home
00:23	Jatim	Muncar	Metro
00:24	Sumatera	Jambi	Metro
00:25	Jatim	Muncar	Home
00:26	Sumatera	Jambi	Home

Proses Email

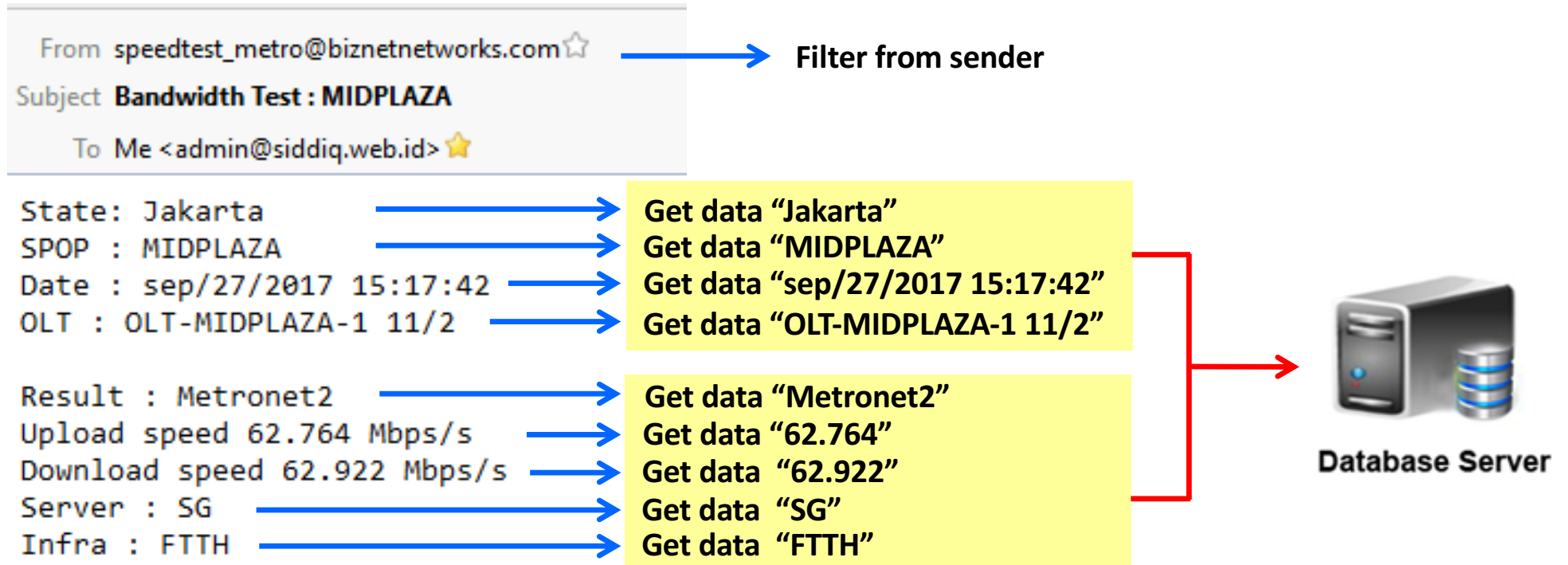
1. Mikrotik Btest melakukan VPN ke server, untuk menghindari spam di SMTP server
2. Mikrotik Btest mengirimkan hasil bandwidth melalui email ke server
3. Mail Server Menerima Email dari Mikrotik kemudian, kemudian di filter berdasarkan sender kemudian di Proses berdasarkan data yang di inginkan, lalu di input di database



Mail Output & Filtering



Mail Server menjalankan script secara rutin (Crontab) untuk mengambil data email dari Sender dan men filter body email kemudian di INSERT ke dalam database (SQL)



Database Bandwidth Test



Setelah data masuk ke dalam Database maka dapat di tampilan ke website

Server: localhost » Database: speedtest » Table: new_data														
+ Options														
← T →														
		id	state	spop	olt	piu	profile	upload	download	date	hour	server	infra	
<input type="checkbox"/>	Edit	566954	Jakarta	SAHARJO	OLT-SAHARJO-1	7/2	METRONET2	63.749	64.440	2017-10-24	14:58:00	SG	FTTH	
<input type="checkbox"/>	Edit	566953	JawaTimur	MOJOKERTO	ONB-MOJOKERTO-1	0/1/13	METRONET2	63.984	4.706	2017-10-24	14:57:00	US	FTTH	
<input type="checkbox"/>	Edit	566952	Bali	UBUD	OLT-UBUD-1	0/1/1	METRONET2	62.147	62.602	2017-10-24	14:57:00	JKT-2	FTTH	
<input type="checkbox"/>	Edit	566951	JawaTengah	PURWOSARI	OLT-PURWOSARI-1	3/1	METRONET2	61.638	53.900	2017-10-24	14:56:00	US	FTTH	
<input type="checkbox"/>	Edit	566950	JawaBarat	INDRAMAYU	OLT-INDRAMAYU-1	11/13	METRONET2	61.959	62.530	2017-10-24	14:56:00	JKT-1	HFC	
<input type="checkbox"/>	Edit	566949	JawaTimur	MADIUN	ONB-PANDEAN-1	0/12	METRONET2	63.270	18.160	2017-10-24	14:55:00	SG	HFC	
<input type="checkbox"/>	Edit	566948	Jakarta	PERWATA	OLT-PERWATA-2	12/1	METRONET2	62.103	62.913	2017-10-24	14:55:00	SG	FTTH	
<input type="checkbox"/>	Edit	566947	JawaTengah	KENDAL	OLT-KENDAL-1	0/0/1	METRONET2	61.860	61.815	2017-10-24	14:55:00	JKT-1	FTTH	
<input type="checkbox"/>	Edit	566946	JawaTimur	BANYUWANGI	OLT-BANYUWANGI-1	0/1/3	METRONET2	63.770	4.112	2017-10-24	14:54:49	US	FTTH	

Connecting Indonesia.

Intranet Website



A screenshot of a web browser displaying the login page for the Customer Monitoring Center. The browser's address bar shows the URL 'cmc.biznetnetworks.com/login.php' and indicates the connection is 'Not secure'. The page title is 'Customer Monitoring Center'. The main heading on the page is 'Sign in with your intranet account'. Below this, there are two yellow input fields: the first contains the username 'faisal_fahmi' and has a user icon on the right; the second contains masked characters '.....' and has a lock icon on the right. Below the password field is a checkbox labeled 'Remember Me'. To the right of the checkbox is a blue 'Sign In' button. At the bottom left, there is a blue link that says 'I forgot my password'.

Speed Test Prepaid



Performance Monitoring

Network

- NOC
- Performance Monitoring
 - OLT
 - Metro
 - NOC
 - PE
 - OTN
 - Link 3rd Party
 - Report Nagios
 - Report Speedtest
- Transmission

FILTERS BY

DAILY

2017-09-18

US

-PILIH SPOP-

-PILIH SERVICE-

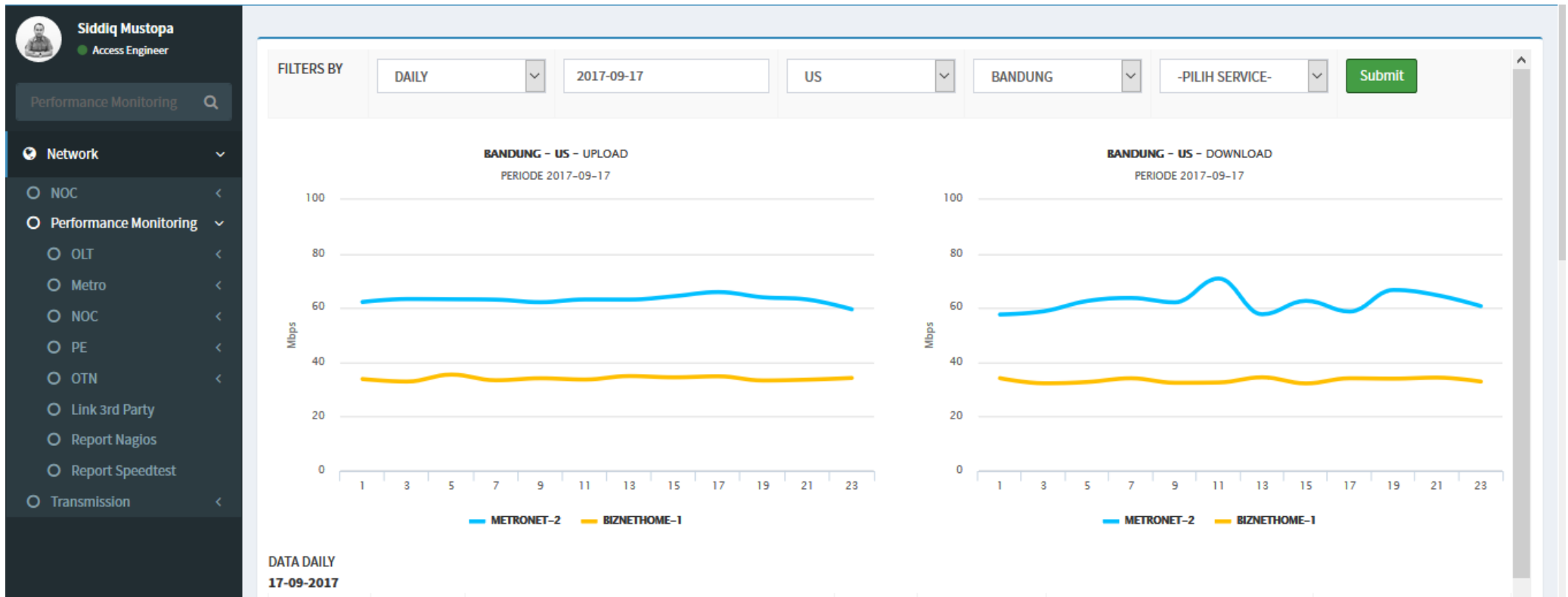
Submit

DATA ALARM DAILY: 18-09-2017

DATA DAILY
18-09-2017

SPOP	AVG METRONET2(UP)	AVG METRONET2(DOWN)	AVG BIZNETHOME1(UP)	AVG BIZNETHOME1(DOWN)	SERVER LOCATION
AEROPOLIS	62.235 Mbps	63.098 Mbps	33.945 Mbps	33.873 Mbps	US
BANDUNG	63.456 Mbps	42.255 Mbps	34.229 Mbps	30.481 Mbps	US
BANYUWANGI	63.259 Mbps	53.029 Mbps	33.289 Mbps	32.931 Mbps	US
BATAM	63.088 Mbps	62.684 Mbps	33.896 Mbps	32.791 Mbps	US
BATANG	57.917 Mbps	62.645 Mbps	32.512 Mbps	32.303 Mbps	US
BEKASI	63.812 Mbps	62.583 Mbps	33.763 Mbps	33.120 Mbps	US
BLITAR	63.629 Mbps	52.565 Mbps	33.541 Mbps	33.936 Mbps	US
BOGOR	62.872 Mbps	50.163 Mbps	34.082 Mbps	32.213 Mbps	US

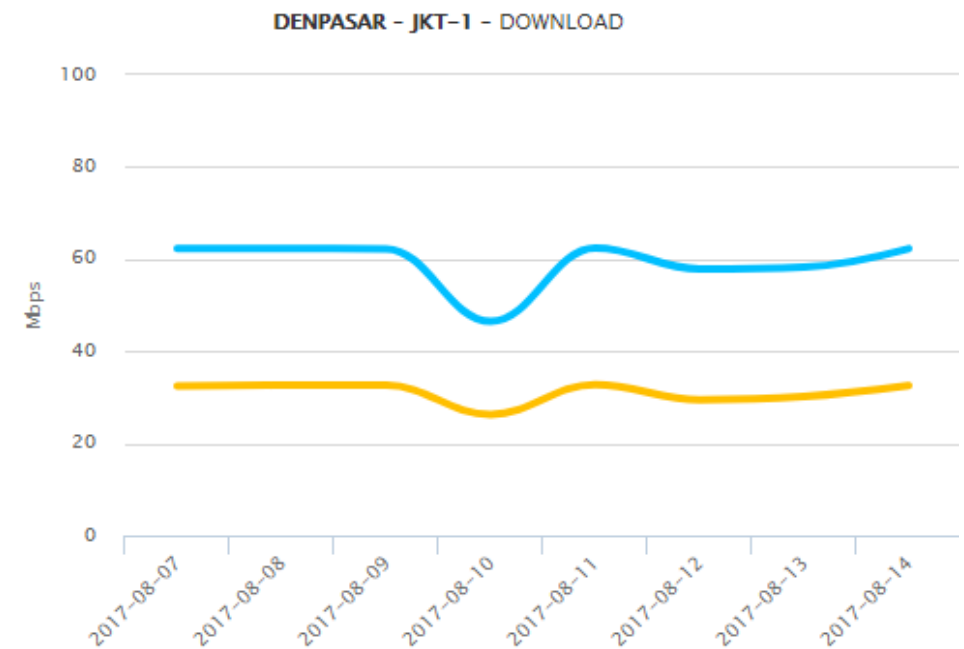
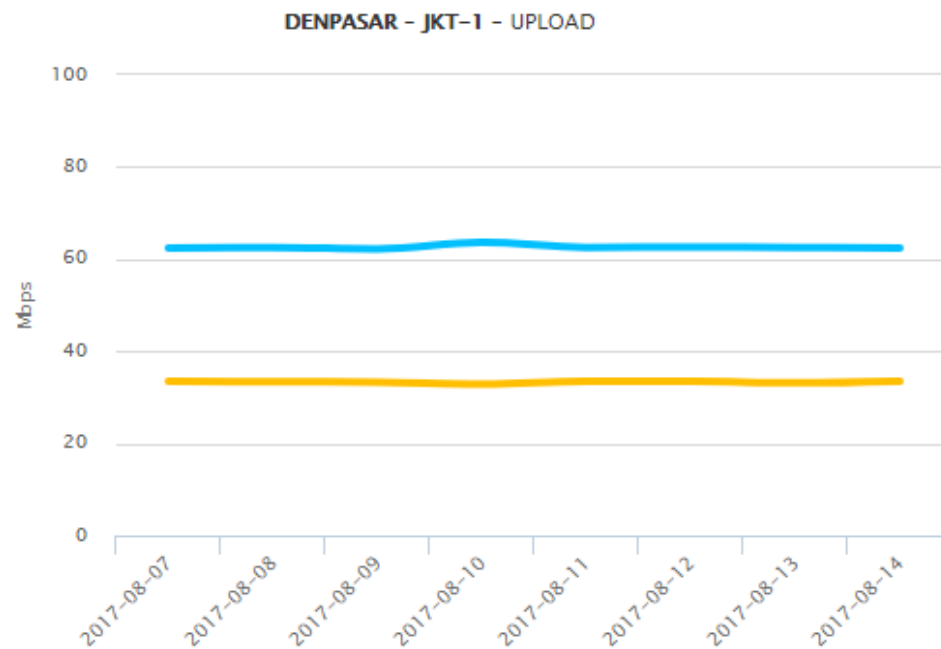
Speed Test Prepaid Daily - POP Bandung



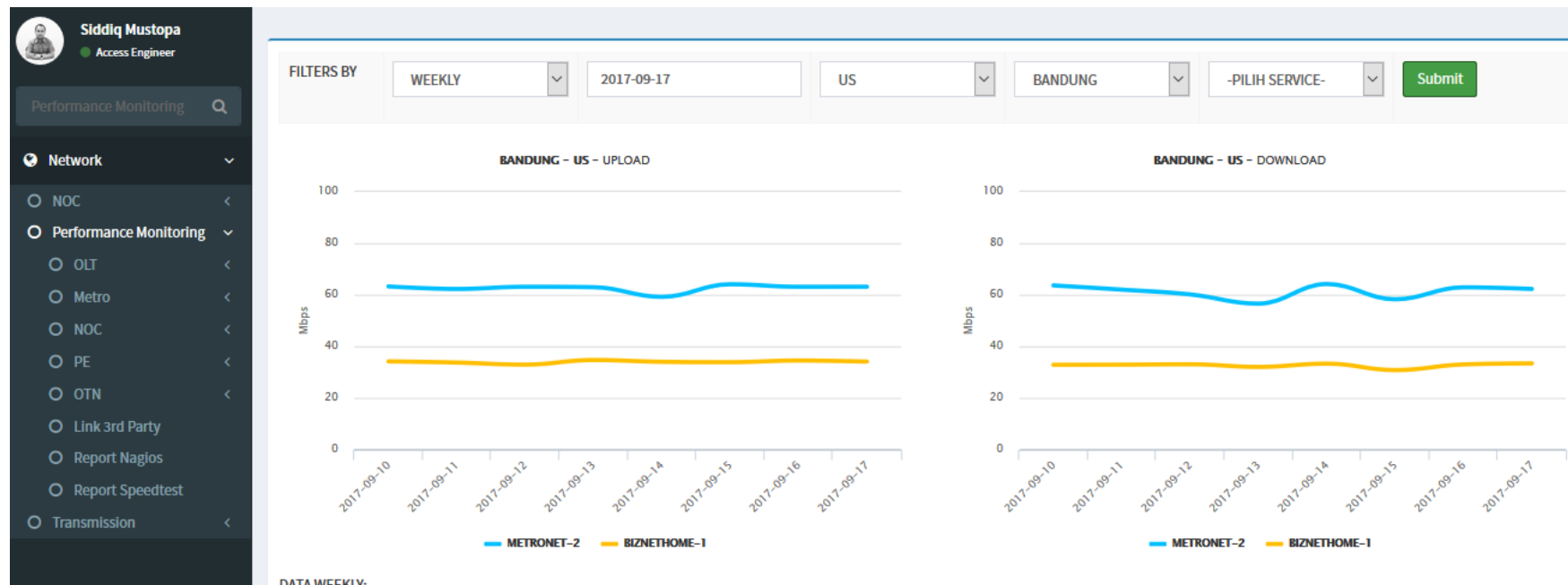
Speed Test Prepaid Weekly - POP Denpasar



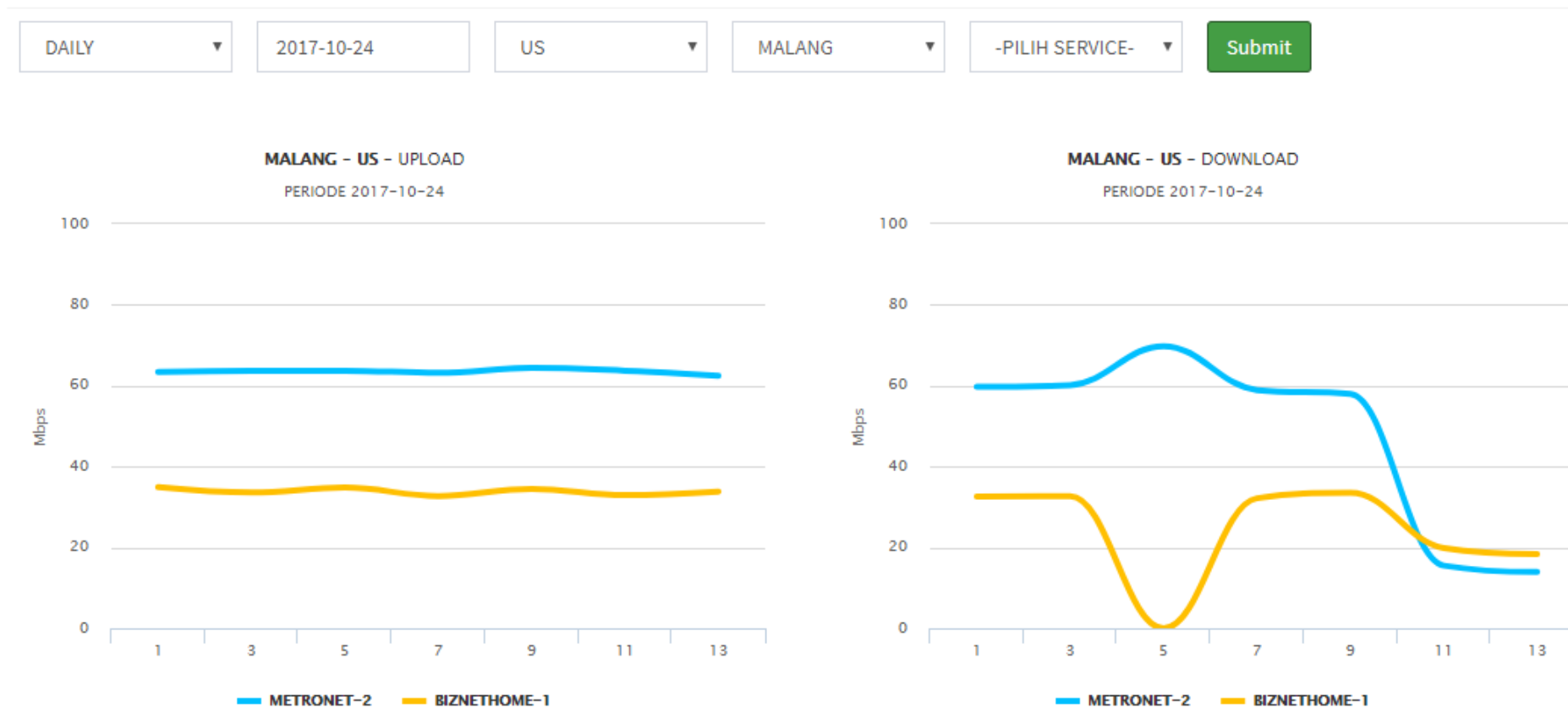
FILTERS BY	WEEKLY ▼	2017-08-14	JKT-1 ▼	DENPASAR ▼	-PILIH SERVICE- ▼	Submit
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Speed Test Prepaid Weekly ke US - POP Bandung



Graph Speedtest Drop



Speed Test Checklist



Engineer diwajibkan untuk mengecek dan mengisi form Action jika ada Btest Spop yang alarm

Search Menu...

MAIN NAVIGATION

- Dashboard
- Abuse Notification
- Account Hosting
- SAP
- Blacklist MTA
- Bruteforce List
- Customer Experience
- Data & History Blocklist
- FAQ Hosting
- Graph NET DNS Email

FILTERS BY

DAILY

2017-09-15

JKT-1

-PILIH SPOP-

-PILIH SERVICE-


Submit







DATA ALARM DAILY: 15-09-2017

DATE	HOURL	SPOP	PROFILE	Mbps	SERVER	INFRA	VIEW DATA ACTION
2017-09-15	17:18:00	BANDUNG	METRONET2	DOWNLOAD: 3.952	US	FTTH	
2017-09-15	19:29:02	BANDUNG	METRONET2	DOWNLOAD: 19.705	US	FTTH	
2017-09-15	20:51:01	BEKASI	METRONET2	DOWNLOAD: 35.670	SG	FTTH	
2017-09-15	19:06:00	BREBES	METRONET2	DOWNLOAD: 10.552	SG	FTTH	
2017-09-15	21:09:00	CIKAMPEK	METRONET2	DOWNLOAD: 25.722	US	FTTH	
2017-09-15	12:54:00	CITRARAYA	METRONET2	DOWNLOAD: 26.282	US	FTTH	
2017-09-15	14:54:00	CITRARAYA	METRONET2	DOWNLOAD: 11.230	US	FTTH	
2017-09-15	15:16:23	CITRARAYA	METRONET2	DOWNLOAD: 16.480	US	FTTH	
2017-09-15	18:54:00	CITRARAYA	METRONET2	DOWNLOAD: 10.983	US	FTTH	

Form Check List Speed Test



 Input Action

Tanggal	 2017-08-15
Engineer	 Twk Faisal Fahmi
SPOP	 BATANG
Profile	 BIZNETHOME1
Server	 JKT-2
Problem	Cut BB <u>segmen</u> <u>Cirebon</u> <> Tegal
Action	Link <u>otomatis</u> reroute via backup
Status	 Open ▼

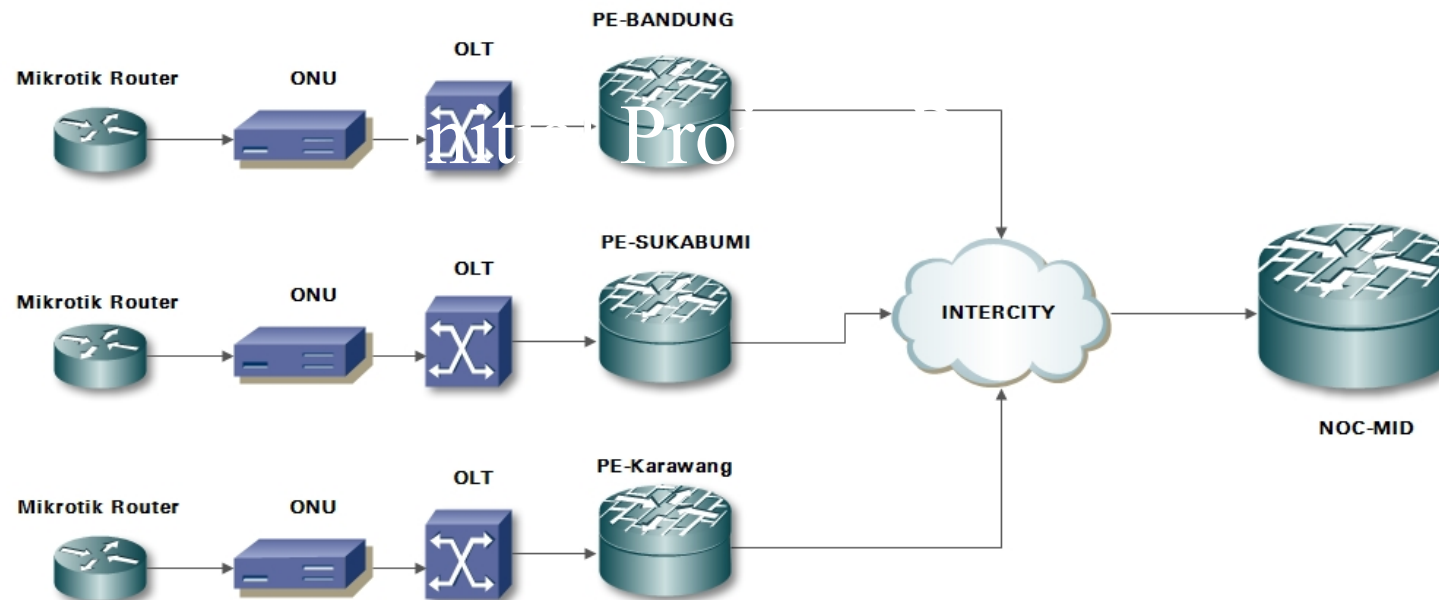
Save

Project Awal



Jawa Barat

- Server menggunakan mikrotik RB450G, lokasi Jakarta
- Client menggunakan mikrotik RB951G-2HnD, lokasi (Bandung, Sukabumi dan Karawang)

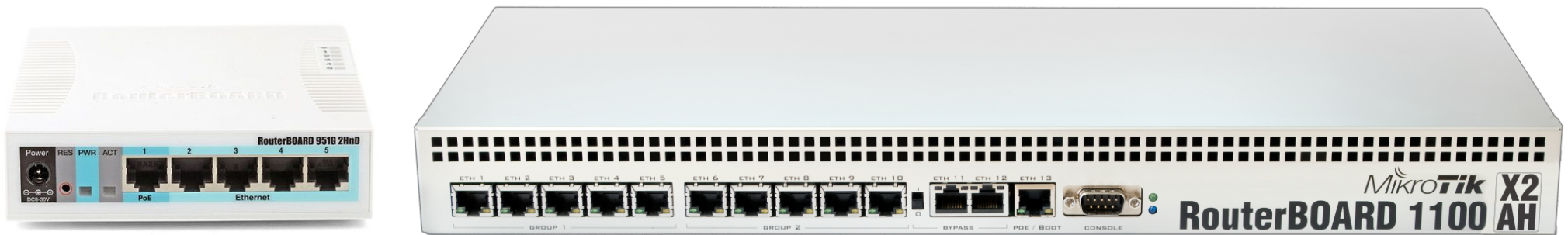


Project Akhir



Jawa , Bali , Sumatera dan Batam

- Server menggunakan mikrotik RB1100AHx2 , lokasi Jakarta, Technovillage, Singapore dan Equinix Palo Alto (US)
- Lebih dari 50 mikrotik test menggunakan mikrotik RB951G-2HnD



Thank You

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