Splynx datasheet

Product Overview

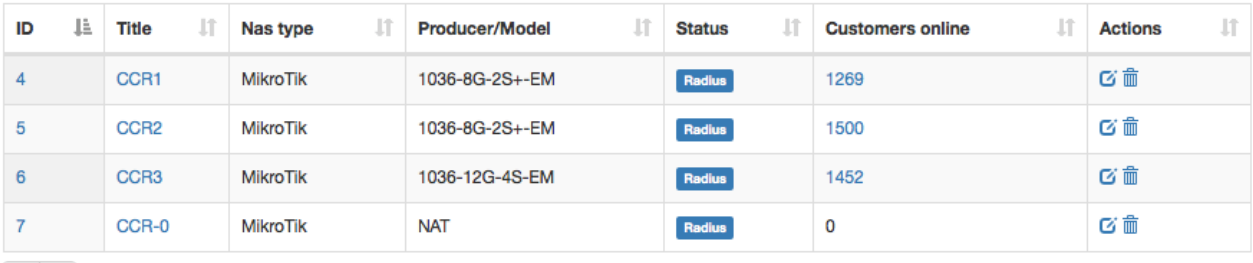
Splynx is a software framework created for Internet service providers and network administrators.
Software provides useful things such as billing, invoicing, central configuration and monitoring of equipment, hotspot billing, client portal etc. Main difference between Splynx and others is how the system can be customized – Splynx provides the easy way to create additional modules or to integrate with 3rd party software solutions. This is achieved because of system design. Splynx is a powerful set of modules and open application interfaces (API), this is the reason we call it Framework.

Features and Benefits

Splynx operates in several areas. Each ISP manages access to his network centrally, also system of ISP should work with finances efficiently, pair payments from bank account or process payments from gateways automatically. Block non-paying customers in right time is a must. Communication with customers via different communication channels is also important.

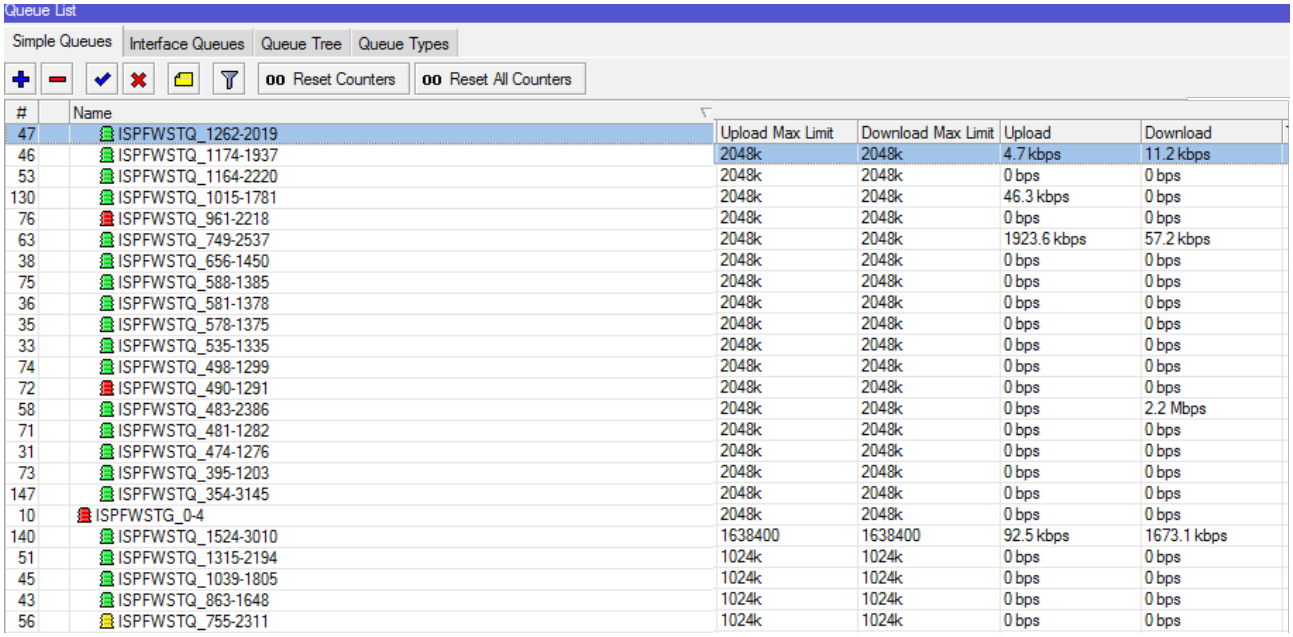
1. Network management

Central authentication of customers
NAS can be connected to Splynx with Radius server. Splynx Radius server supports Cisco, Mikrotik, FreeBSD, UBNT Edge routers, Juniper. With own Radius server Splynx can authenticate any PPP or VPN type of connections such as PPPoE,PPTP,L2TP, OVPN etc. Also Splynx is able to authenticate Wireless customers based on MAC address or perform DHCP authentication.
In Mikrotik RouterOS, instead of Radius Splynx can setup local authentication via API. Splynx creates rules (secrets) for customer authentication and then Mikrotik Router performs authentication locally without requesting Radius server. This setup have own advantages (no need of Radius server) and disadvantages (same customer should always connect to same router).
Splynx Radius server is capable of processing thousands of requests and module is scalable for over 100 000 online concurrent sessions.



ID	Title	Nas type	Producer/Model	Status	Customers online	Actions
4	CCR1	MikroTik	1036-8G-2S+-EM	Radius	1269	
5	CCR2	MikroTik	1036-8G-2S+-EM	Radius	1500	
6	CCR3	MikroTik	1036-12G-4S-EM	Radius	1452	
7	CCR-0	MikroTik	NAT	Radius	0	

Speed limitation
If you use Radius, Splynx sends to NAS information about speed limits in Rate-limit attributes. This is supported by all vendors and Splynx has complex Radius engine, which supports adding and configuration of different attributes and variables.
In case of Mikrotik RouterOS setup you can benefit from creating complex Queue Trees with Mikrotik API. Splynx pushes the queue rules to Mikrotik router and can define such things as priority per plan/customer, aggregation per router/sector or aggregation of customers per tariff plan.



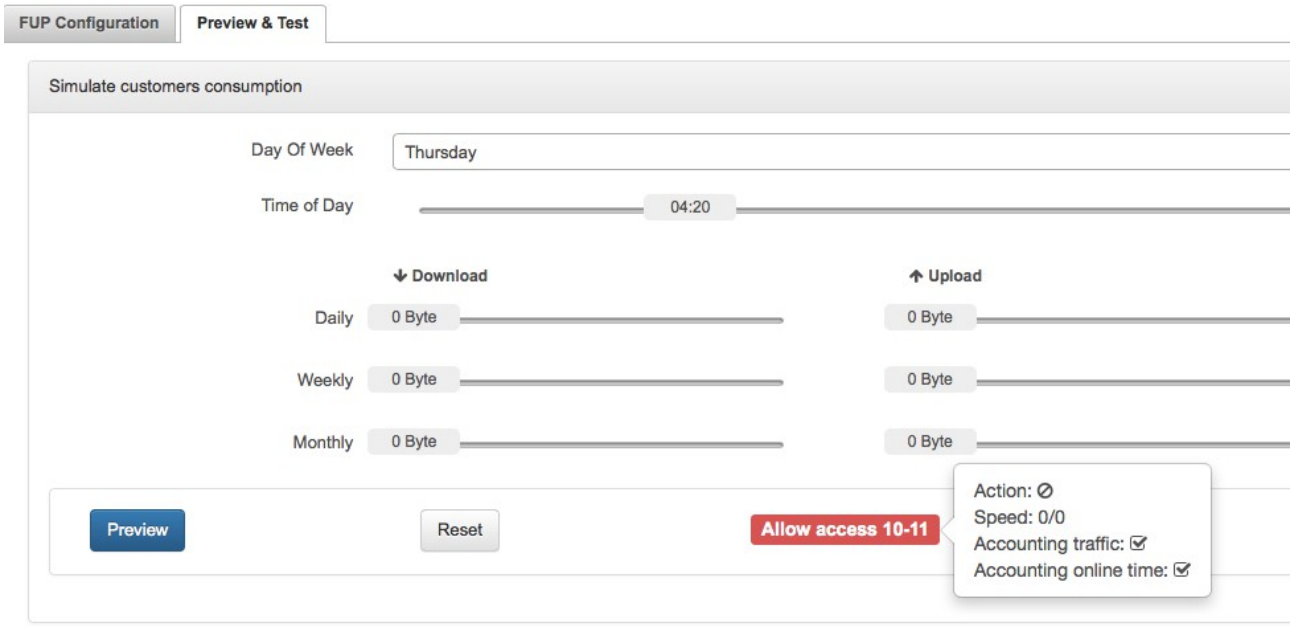
#	Name	Upload Max Limit	Download Max Limit	Upload	Download
47	ISPFWSTQ_1262-2019	2048k	2048k	4.7 kbps	11.2 kbps
46	ISPFWSTQ_1174-1937	2048k	2048k	0 bps	0 bps
53	ISPFWSTQ_1164-2220	2048k	2048k	46.3 kbps	0 bps
130	ISPFWSTQ_1015-1781	2048k	2048k	0 bps	0 bps
76	ISPFWSTQ_961-2218	2048k	2048k	1923.6 kbps	57.2 kbps
63	ISPFWSTQ_749-2537	2048k	2048k	0 bps	0 bps
38	ISPFWSTQ_656-1450	2048k	2048k	0 bps	0 bps
75	ISPFWSTQ_588-1385	2048k	2048k	0 bps	0 bps
36	ISPFWSTQ_581-1378	2048k	2048k	0 bps	0 bps
35	ISPFWSTQ_578-1375	2048k	2048k	0 bps	0 bps
33	ISPFWSTQ_535-1335	2048k	2048k	0 bps	0 bps
74	ISPFWSTQ_498-1299	2048k	2048k	0 bps	0 bps
72	ISPFWSTQ_490-1291	2048k	2048k	0 bps	0 bps
58	ISPFWSTQ_483-2386	2048k	2048k	0 bps	2.2 Mbps
71	ISPFWSTQ_481-1282	2048k	2048k	0 bps	0 bps
31	ISPFWSTQ_474-1276	2048k	2048k	0 bps	0 bps
73	ISPFWSTQ_395-1203	2048k	2048k	0 bps	0 bps
147	ISPFWSTQ_354-3145	2048k	2048k	0 bps	0 bps
10	ISPFWSTG_0-4	2048k	2048k	0 bps	0 bps
140	ISPFWSTQ_1524-3010	1638400	1638400	92.5 kbps	1673.1 kbps
51	ISPFWSTQ_1315-2194	1024k	1024k	0 bps	0 bps
45	ISPFWSTQ_1039-1805	1024k	1024k	0 bps	0 bps
43	ISPFWSTQ_863-1648	1024k	1024k	0 bps	0 bps
56	ISPFWSTQ_755-2311	1024k	1024k	0 bps	0 bps

Bandwidth manager

Important part of Splynx ISP Framework is a smart bandwidth management. Customer speed can be defined based on amount of traffic consumed in month/week or even day. Also Splynx can setup maximum online time in hours per customer.

Examples of bandwidth manager are below

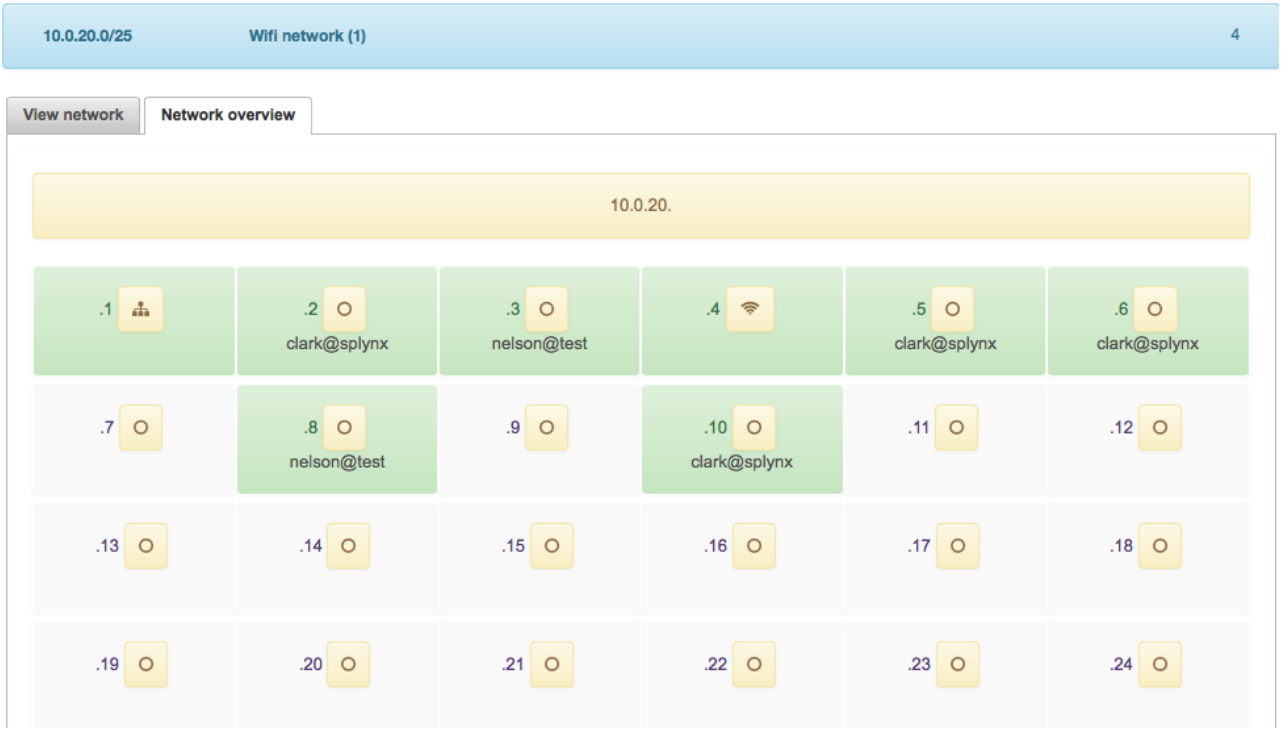
1. double speed in night hours
2. don’t count traffic on weekends,
3. slow down high downloaders based on daily transferred data
4. provide access to customers in certain period of day time
5. provide time-based access
6. aggregate customers to groups



Blocking of non-payers and further redirects

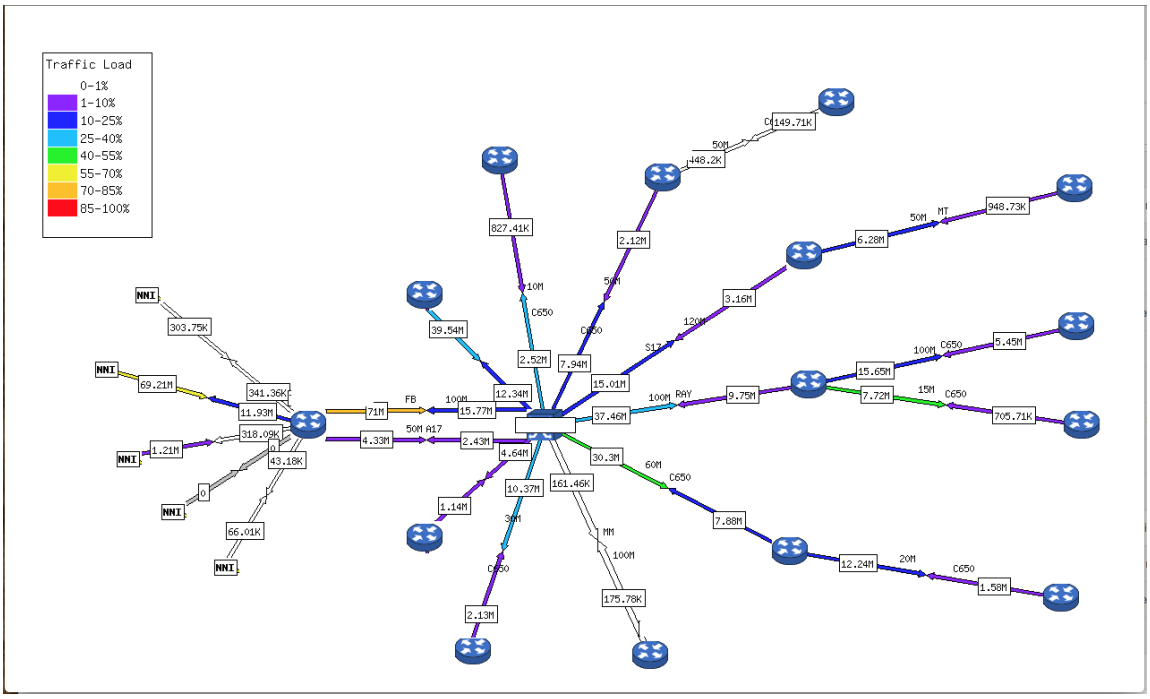
Both with Radius and Mikrotik API, Splynx manages blocking and processing non-paying users. This can be achieved automatically, when non-payers are blocked after period of time without payment, or administrator can block customer’s account manually. Customer receives IP from predefined pool or his existing IP address can be added to address-list for non-payers. Then administrator can easily setup a redirection rule and send customer to special webpage. Splynx has 4 special webpages for different blocks of customers. These webpages are fully customizable as many other parts of Splynx ISP Framework.

IP address management
There are several ways how to manage IP address assignments. Many administrators even in large enterprises are using excel sheets, because of lack of smart IP address management tools. We suggest to use our engine for IP address management . This module is connected to customer's database in Splynx. When IP address or subnet is assigned to customer for his access, IPs will be locked in IP address management tab as well. Main benefit of this approach is avoidance of IP conflicts when several customers get same IPs or IPs from wrong ranges. With our IPAM an overview of the actual situation is always available.



Network monitoring
Splynx monitoring is based on SNMP, RRD and Ping tool. Administrator can setup monitoring for any OID supported by hardware vendor and draw charts with Splynx. Moreover our monitoring supports awesome weathermaps. We use open source project in Splynx – http://network-weathermap.com.

It’s very powerful tool for visual interpretation of networks and is simple to connect this system with Splynx ISP Framework. Network monitoring supports sending alerts via email and sms gateways.

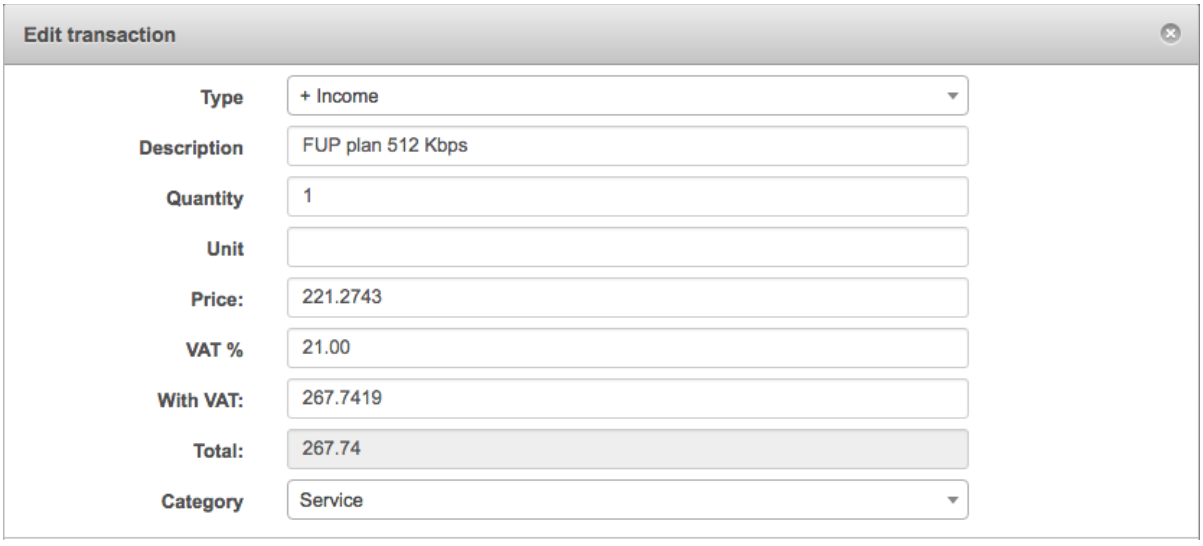


2. Billing and invoicing

Transactions

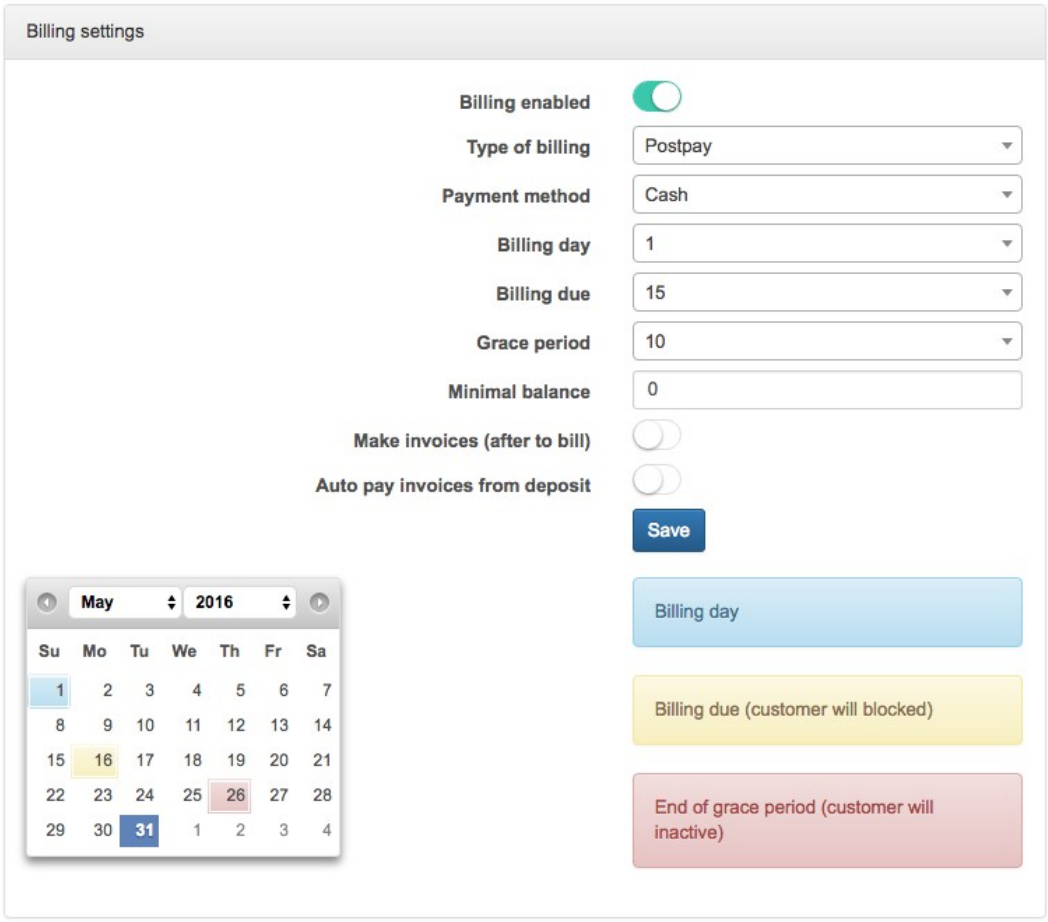
The whole billing process inside Splynx is based on transactions.
Transaction is added when :
1. Splynx charges a customer for billing period
2. Customer pays money
3. Administrator adds or removes money to/from balance of customer

Because of transaction system there is always a clear history what was made with customer’s balance and why it was changed.



Billing period

Splynx can charge every month in prepay mode or postpay mode.
Prepay mode – for example we are charging customers 1st of May for period 1-31 of May.
Postpay mode – customer is charged 1st of May for previous month (April).
Billing day can be 1st of month, or each customer can have different billing day, it can depend on the date when he was connected.
It means that some customer can be charged for 12.04 – 11.05 and other for 25.04 – 24.05.
Also is available feature of postponed billing, which means that invoice for period 1-31 of May is generating during May.
Billing engine is very complex and can be configured to special needs of each ISP.

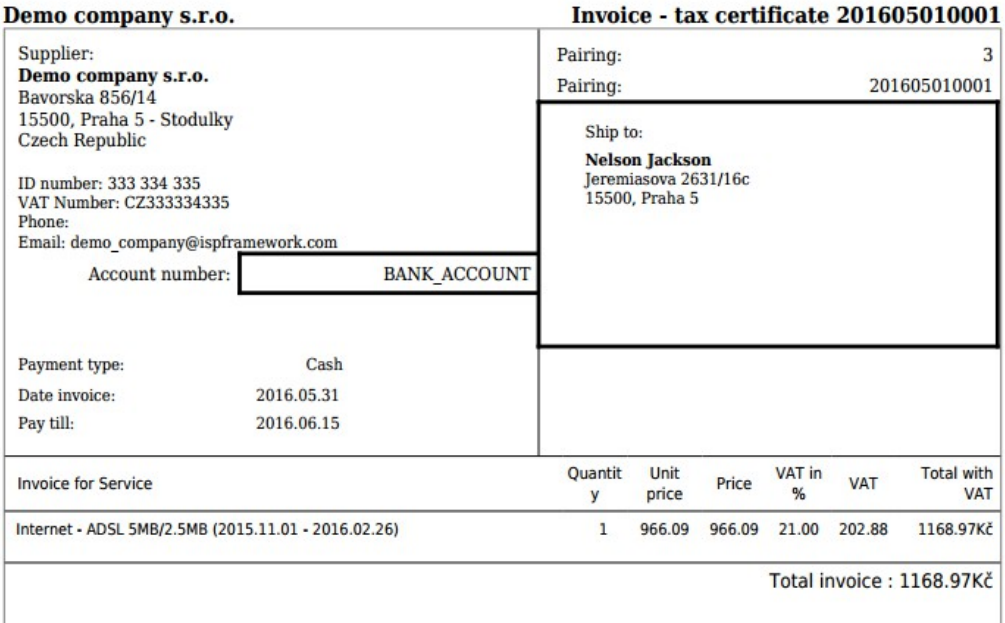


Multiple services

One customer can get many different ISP services – Internet connection, public IPs, TV, VOIP, mobile calls etc.
All these services is possible to define in Splynx and then add to particular customers.
If customer has VOIP or Mobile services, Splynx can process CDR files from different PBX systems and charge customer.
The customer then receives one common invoice for all services, including calls, data and SMS.
Also all his data from CDRs are visible on Splynx client portal and customer can view his statistics and calls details.

Invoices

Splynx provides an ability to work with or without invoices.
Without issuing invoices, Splynx just receives payments and charges customer every billing period without creating any official documents.
In case when invoicing is required – Splynx is able to generate invoices automatically. Also administrator cas issue invoices manually.
PDFs of invoices are fully customizable.



Demo company s.r.o. **Invoice - tax certificate 201605010001**

Supplier:
Demo company s.r.o.
Bavorska 856/14
15500, Praha 5 - Stodulky
Czech Republic

ID number: 333 334 335
VAT Number: CZ333334335
Phone:
Email: demo_company@ispframework.com

Account number: BANK_ACCOUNT

Pairing: 3
Pairing: 201605010001

Ship to:
Nelson Jackson
Jeremiasova 2631/16c
15500, Praha 5

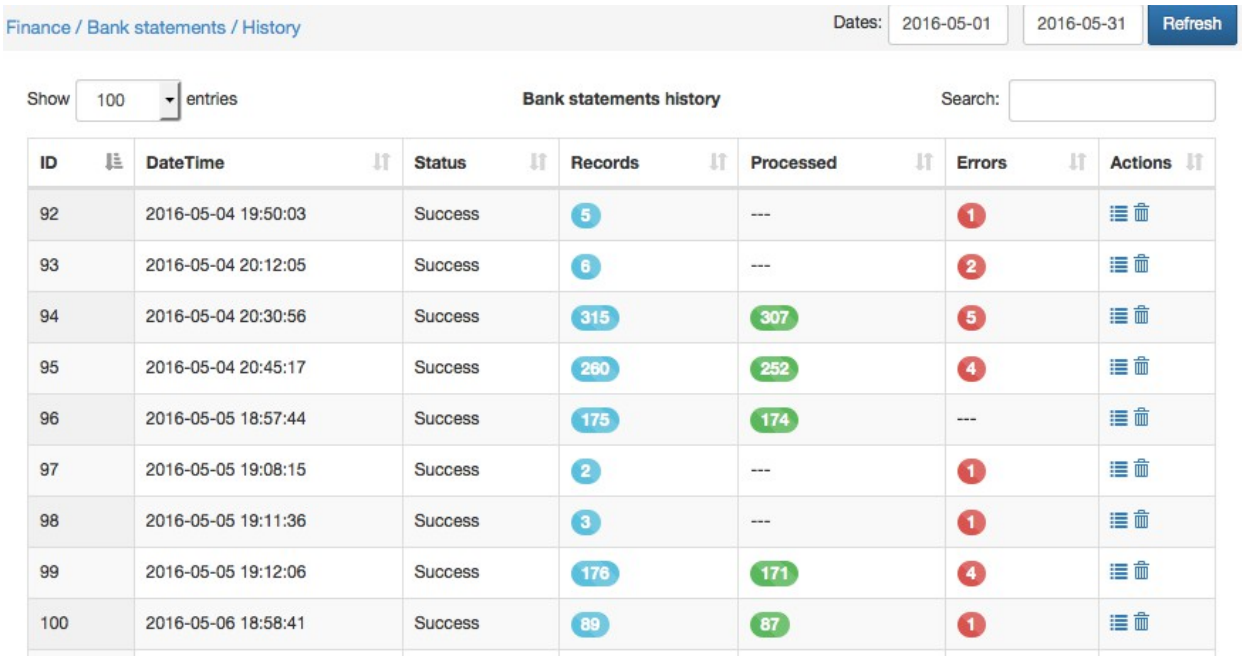
Payment type: Cash
Date invoice: 2016.05.31
Pay till: 2016.06.15

Invoice for Service	Quantity	Unit price	Price	VAT in %	VAT	Total with VAT
Internet - ADSL 5MB/2.5MB (2015.11.01 - 2016.02.26)	1	966.09	966.09	21.00	202.88	1168.97Kč

Total invoice : 1168.97Kč

Requests
Sometimes companies don't issue the invoice directly to customer, but sends him a request for payment or pro-forma invoice.
It is a non-taxable document and also balance of customer is not changed, when Splynx creates these types of document.
The main reason for this billing approach is to prevent paying of VAT tax for non-paying customers.
When customer pays amount of money specified on request PDF, company can issue a tax invoice.

Payments
Splynx can support all possible payment gateways and process different bank statement formats. Splynx has a pairing engine and payment processing inside the core of the system.
Some of payment gateways as Paypal are enabled by default. Our developers can add support of payment gateway per customer, based on their needs and bank or gateway format.
Splynx can process thousands of payment transactions and pair them with accounts in the system. This brings full automatization of the process for accounting department of ISP.

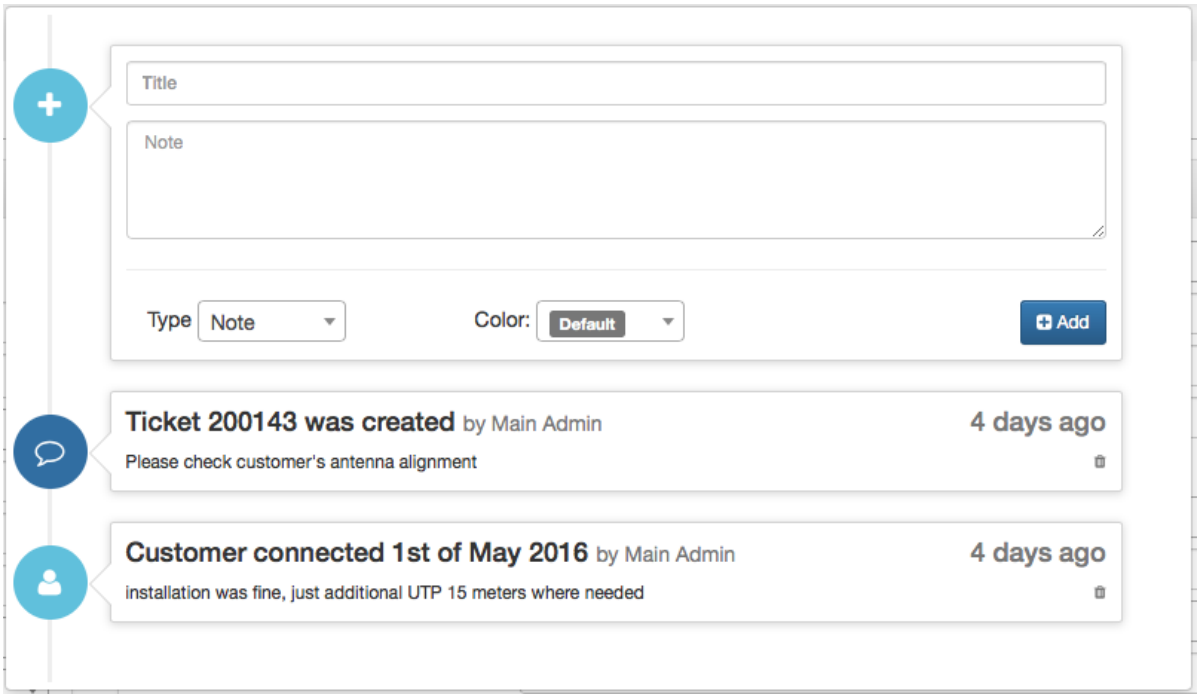


ID	DateTime	Status	Records	Processed	Errors	Actions
92	2016-05-04 19:50:03	Success	5	---	1	
93	2016-05-04 20:12:05	Success	6	---	2	
94	2016-05-04 20:30:56	Success	315	307	5	
95	2016-05-04 20:45:17	Success	260	252	4	
96	2016-05-05 18:57:44	Success	175	174	---	
97	2016-05-05 19:08:15	Success	2	---	1	
98	2016-05-05 19:11:36	Success	3	---	1	
99	2016-05-05 19:12:06	Success	176	171	4	
100	2016-05-06 18:58:41	Success	89	87	1	

Imports and exports
All invoices, request and payments can be imported to any accounting software.
Splynx supports different formats of export and other formats can be added, because all export/import operations are done via stong Splynx API.
Framework can be integrated with accounting software such as QuickBooks, then invoices and payments will be synchronized in these two systems automatically.
Also with Splynx you get a flexible tool for importing/exporting whole customers database or parts of database.

3. Customer relation management

Splynx works with smart template engine, called Twig.
With Twig it's easy to create any kind of HTML templates and we use it for generation of documents such as agreements, connection protocols etc.
All emails to customers can be send as HTML message with unique structure and company design.
Client portal is fully customizable with Twig templates, as a result each ISP can have his own client portal for customers.
Splynx has an internal CRM, which shows all communication and history of customer. This communication is based on email messages, SMS, tickets, or commentaries.

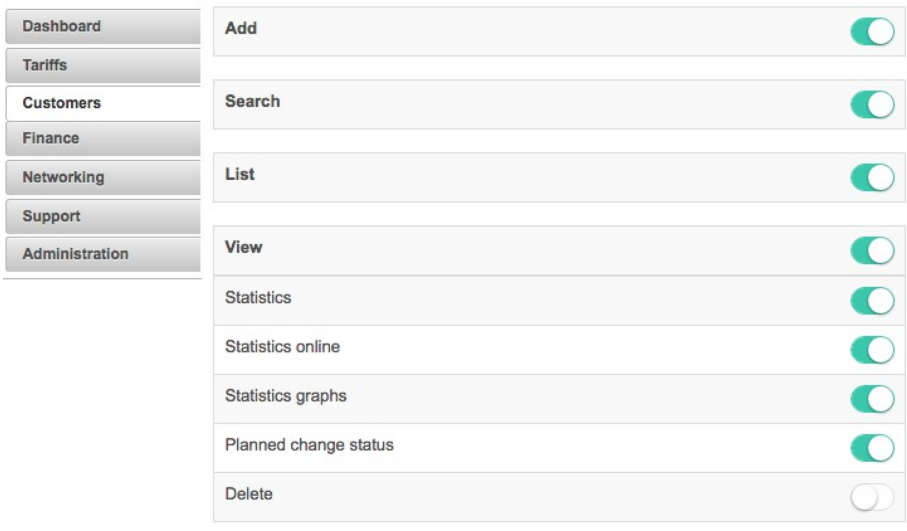


Splynx can automatically send invoices and information about services/payments to customers via email or/and SMS. We have 3 types of reminders, which are sent to non-paying customers.

4. API, Administration and logging

Open API
All parts of Splynx are available through API. Other applications can create customers, set them plan, get statistics, documents etc. The bank processing API is very popular and used by our customers, because each ISP has his own bank or payment gateway formats.
Each ISP company can create own custom module and integrate it directly to Splynx or leave it as standalone application, which will collect and push data from/to Splynx database. Or our customers can request us to create a custom module.
Examples of custom modules created by Splynx team from our customers :
1. management of CableTV modems (Digi TV, Serbia)
2. mobile calls processing from mobile CDRs (Aircom, Spain)
3. Hotspot software integration (iBound, South Africa)
4. Cashdesk system for payment processing (Acerco Telecom, Spain).
5. Integration with LTE services (Skywire Technologies Pty, South Africa)
Full description of Splynx API is available on http://docs.splynx.apiary.io

Permissions
All administrators can have different type of access to the Splynx system. Manager, installer etc. We have preconfigured permission levels in Splynx. Also there is a way how to define permissions per individual Splynx user. These administrators can login to networking equipment if Radius login authentication is set on devices. Then request from device is sent to Splynx and access to the device is granted accordingly to administrator's permission level.



Logging
All changes and actions are stored in Splynx central logging system. There are many different logs from API communication, Radius server, Administrator's actions, changes of plans etc. Plans of tarrif changes are stored in separate table, so administrators can see when Splynx will change tarrif plan and setup new speed limitation.

References
Splynx is used in more than 100 networks after few months of launch. Below is a list of some our customers with full integration of Splynx in large networks and commercial subscription license:
Skywire Technologies Pty, South Africa – www.skywire.co.za
Aircom, Spain – www.aspwifi.net
XtriNet-LTD, Jamaica – www.xtrinet.com
Acerco Telecom, Spain – www.acerco.es
Himnet, Turkey – www.himnet.com.tr
Perspektiva Ltd., Russia – www.vyborg.pro
MasInternet, Spain – www.teleondas.es

5. Technologies

System front-end is written in PHP programming language. Database is MySQL. The back end consists from different parts. Monitoring is made in NodeJS for high performance, Radius module is Perl based.
The whole UI part is JQuery and Bootstrap based.
Templates of the system are made in Twig PHP template engine.

Hardware Requirements
CPU: 2 cores and more
CPU Core speed: 2400 Mhz and more
Memory: 1 GB and more
HDD: 32 GB and more
Network interfaces: 1 and more
Splynx supports Virtual Machines – VMWare, XEN, KVM, Hyper-V
Splynx Isp Framework can't work on OpenVZ containers.
Software we are using:
OS Linux: Debian 7, or 8 or Ubuntu (14.04, 14.10 or 15.04) , PHP 5.4, 5.5, 5.6, MySQL server
Better is always to secure web server with SSL Certificate. We recommend GlobeSSL service.