

The easyFTTH Cloud provides the billing, subscriber management and network supervision functionality that an Internet Service Provider (ISP) business requires, without ongoing charges. Free access to an easyFTTH Cloud service account is included with each easyFTTH access controller.

easyFTTH Cloud Management Feature Summary

Sales: Add and manage subscribers.

Provisioning: Create work orders to schedule subscriber installations.

Activation: Activate new subscribers onto the network.

Authentication: The ONT MAC address is entered to authenticate the subscriber.

Subscriber rate plans: Create multiple cost/performance plans for subscribers to choose.

Fixed broadband billing:

Subscriber pre- and post-paid billing, with invoicing, collection notification and past-due automatic disable.

Additional service sales: Access code generation for the sale of additional data when a monthly data cap is imposed.

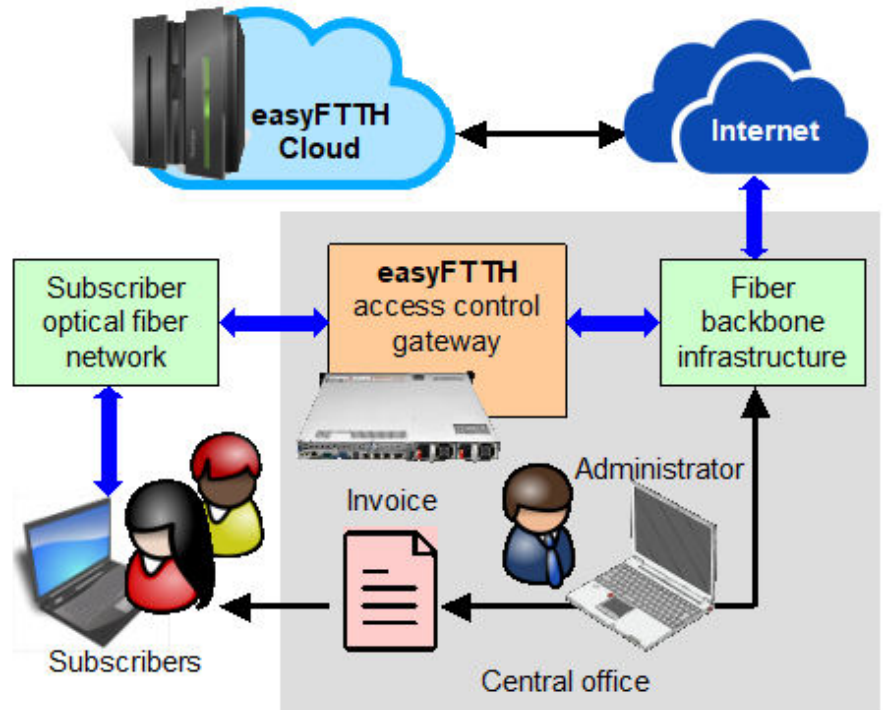
Network monitoring: Detection and alarm of easyFTTH gateway and subscriber network to CPE data link failures.

Customer relationship management:

A CRM portal that subscribers use to access account data and submit a support request.

Helpdesk: Support staff responds to ticket requests, and escalate issues to other staff and management.

Reports: Report categories include billing, maintenance, data traffic and support.



The easyFTTH Cloud management system

The easyFTTH Cloud management system was designed using telecommunications industry best practices; the OSS/BSS process model for telecom business management. The easyFTTH Cloud provides all the systems functionality that is required to manage a ISP business. The easyFTTH Cloud is integrated with the easyFTTH access controller that is installed at the Network Operations Center (NOC) to manage the flow of subscriber data traffic. An easyFTTH Cloud account can manage multiple easyFTTH access controllers concurrently for ISP's that have more than one NOC, or else install access control at the PtMP tower. There is no limit to the number of subscribers that can be managed by a free easyFTTH Cloud account.

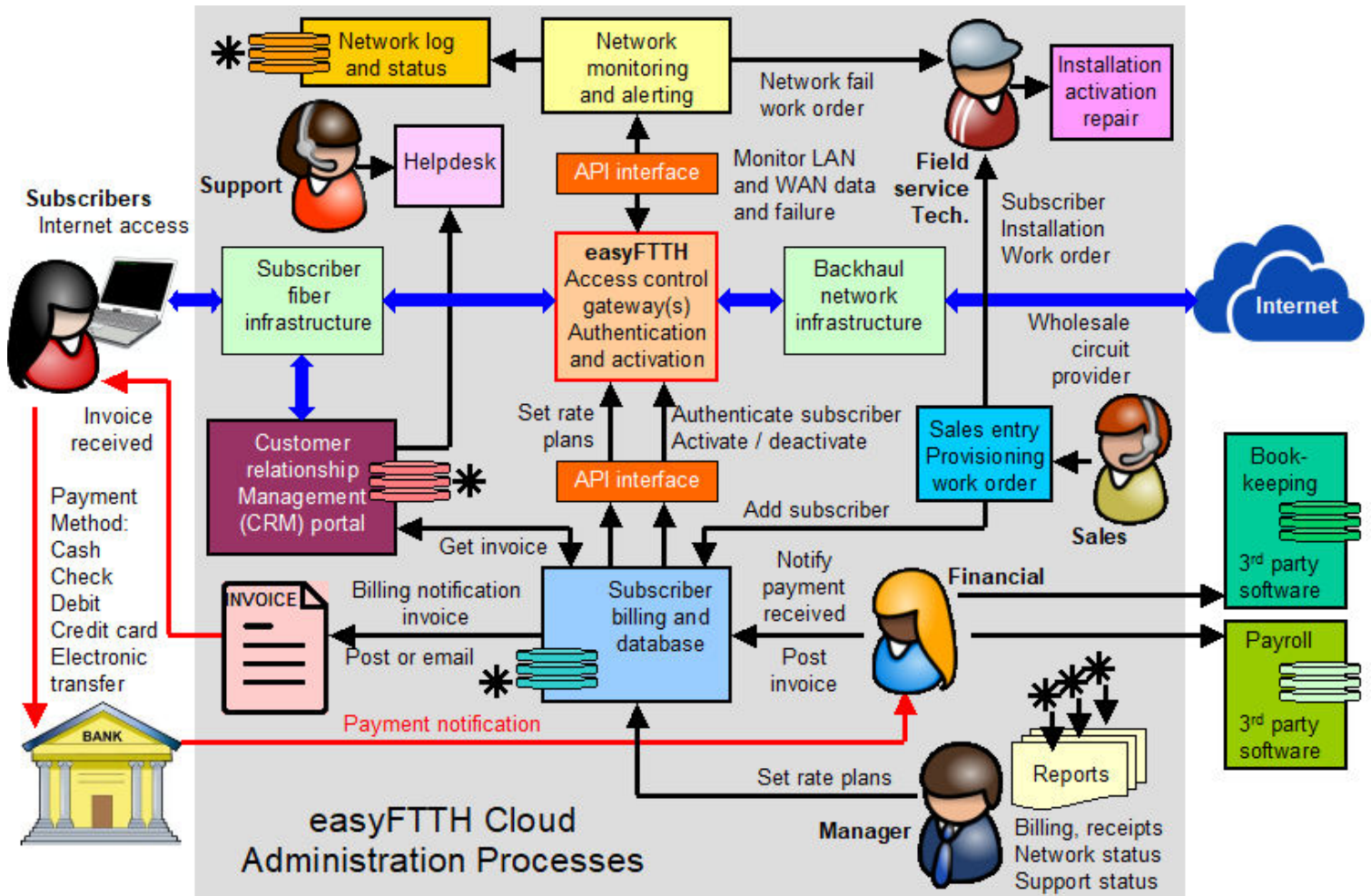
A world-class WISP management system with no charges

ISP's are accustomed to paying a fee which might be \$1 for each subscriber each month when using a cloud management system. Not with easyFTTH, the unlimited Cloud service is included free with each easyFTTH access controller. There is no limit to the number of subscribers and multiple easyFTTH access controllers can be added to one easyFTTH Cloud account. This is possible because each easyFTTH controller is a computing element in the Cloud network and processes all access transactions. The Cloud manages batch tasks, which greatly reduces the operating overhead. Once programmed by the Cloud, each easyFTTH controller manages network access without Cloud supervision.

easyFTTH Cloud overview

The administration process flow is initiated by sales adding a subscriber to the system. The subscriber information is added to the billing database and an installation work order is created and sent to the technician. The subscribers billing cycle is initiated upon activation.

Financial staff issue invoices as indicated by the billing cycle and post notifications of receipts. Each easyFTTH access controller is monitored and an alert advises the administrator of a failure. Each subscriber has access to the CRM Portal to check the account and open a support ticket. The manager can obtain reports from each of the sub-systems to monitor the operation of the business.



easyFTTH Cloud staff roles

The Cloud has five roles and each role has unique access privileges. Each role can have an unlimited number of staff login credentials.

Manager: responsible for supervision of all roles and business decisions, access to operational reports.

Sales: responsible for acquiring new subscribers and adding subscribers to the system.

Customer service: responsible for the customer interface regarding any questions, problems, terminations, requests for upgrades, etc.

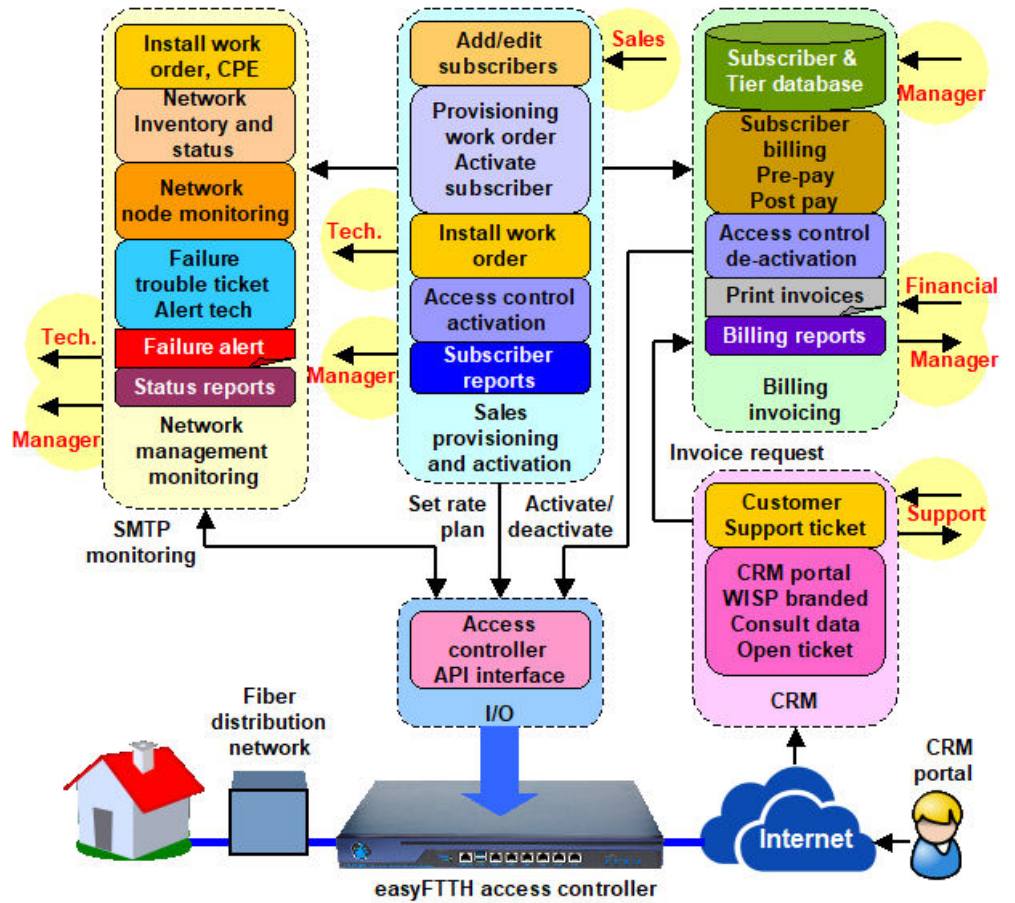
Finance: responsible for income and expenses, principle tasks are to maintain the billing system and ensure that subscribers pay invoices.

Technical: responsible for work orders, installation of new subscribers, maintenance of existing subscribers, repairs to the network, and expansion of the network.

easyFTTH: Cloud sub-systems and sub-system processes.

Subscriber billing

The ISP creates a number of rate plans, each is a data speed and corresponding charge. A new subscriber chooses a rate plan that is added to the subscriber's profile. Activation of the subscriber initiates the start of the billing cycle. An invoice is issued for each billing cycle and the subscriber payment is noted in the billing system by financial staff. The billing system sends the subscriber activation and rate plan instructions to the respective easyFTTH access controller. In the case of non-payment the subscriber is deactivated.



Sales, provisioning and activation

Sales staff can add new subscribers and change subscriber information. The subscriber chooses a rate-plan. Entry of a new subscriber initiates a workflow process that will generate a work order for technical staff to install the ONT fiber equipment at the subscriber premises. Subscriber billing information is added to the billing database. On completion of the subscriber installation the technician activates the subscriber and initiates the billing cycle.

Customer relationship management (CRM)

Each new subscriber receives a login credential for the CRM portal. This is an ISP branded website that the subscriber can login to see information about the account and retrieve billing invoices. The subscriber can open a customer support ticket that is sent to the support staff for answer. On-line payments can be made through the CRM portal. In the case that the Internet is not available due to circuit failure or non-payment then the captive portal displays a message.

Network monitoring and reporting

The easyFTTH Cloud monitors all easyFTTH controllers for failure and sends an alert to the administrator if this occurs. Support staff can test the circuit to the subscriber ONT when the subscriber reports no connection. Data traffic through each easyFTTH controller is monitored and a bandwidth-use time-graph indicates when a WAN circuit is nearing congestion. The administrator can see a status report for each easyFTTH controller.

Billing rate plans

The ISP can install an unlimited number of rate plans for fixed broadband subscribers. Each rate plan specifies a maximum download / upload speed and the corresponding plan charge. When enrolling a new subscriber the rate plan is chosen based on cost or data speed. Billing invoices charge the customer at the chosen rate plan. The billing system sends the customers chosen data speed to the easyFTTH access controller.

Additional billing tasks

ISP may choose to impose a monthly data cap on each subscriber. This is usually the case when the ISP is paying the wholesale backbone provider for each GB of data. When the subscriber reaches the monthly data limit the Internet access is suspended and the subscriber is redirected to the CRM captive portal. easyFTTH permits the ISP to sell access codes that will give the subscriber an additional data allowance.

easyFTTH access controller functions

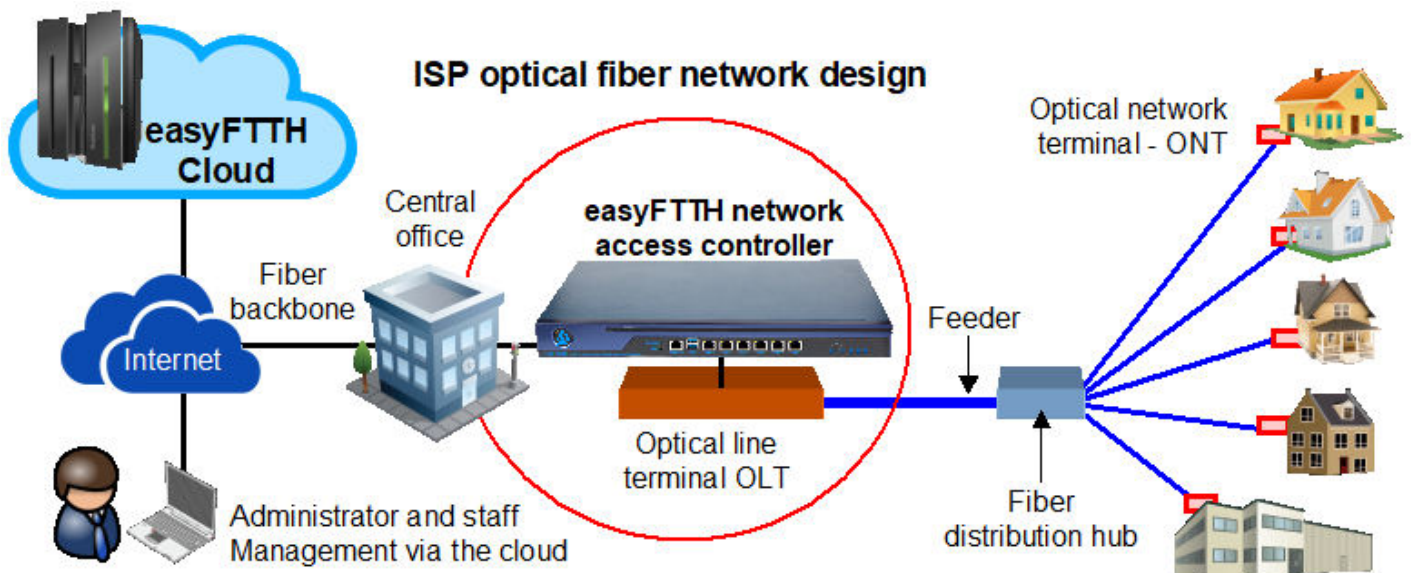
Each easyFTTH access controller implements several tasks:

- Authenticate each subscriber ONT onto the network.
- Apply subscriber rate plans.
- Enable/disable subscriber access.
- Monitor ONT status.
- Update the Cloud with network status and traffic.
- Captive portal for CRM and status.
- Mobile broadband authentication.

easyFTTH Cloud network implementation

The easyFTTH Cloud can manage multiple easyFTTH controllers. Install an easyFTTH controller at the central office and as the ISP's business expands additional central offices can be established, each with an easyFTTH access controller installed, and can be connected to different wholesalers.

When a subscriber is added to the billing system the easyFTTH controller that will service the subscriber is specified, this might be one of several central offices. Each easyFTTH controller downloads a partial database for the subscribers assigned to that controller. The easyFTTH controller functions autonomously and only receives updates from the Cloud when a new subscriber is added to that controller.



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