



Guest Internet
Managed WiFi

CONNECT | EMPOWER | GROW

AUGUST
2026

TELECOM SYSTEMS MANAGE RURAL COMMUNITY SATELLITE INTERNET

CONNECTING REMOTE AREAS
TO A BRIGHTER TOMORROW



SATELLITE
CONNECTIVITY



STRONGER
COMMUNITIES



EXPANDED
OPPORTUNITIES



A MORE
CONNECTED
WORLD

*Rural Connections.
Real Impact.*

COMMUNITIES | SCHOOLS | HEALTHCARE | BUSINESSES | GOVERNMENT

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Delivering Internet WiFi solutions
since 2010 across more than 65 countries.

BRIDGING
COMMUNITIES
THROUGH
CONNECTED
OPPORTUNITIES

Telecom systems can manage rural community satellite Internet services

This report explores how telecom companies can expand affordable Internet services into underserved markets, particularly rural communities in Africa, with minimal infrastructure investments. The report explains how satellite Internet combined with the Guest Internet cloud and Broadband Network Gateways (BNGs) can be integrated with telecom management systems to authenticate and manage subscribers, control individual Internet service plans, and process payments. This approach enables telecom companies to offer communities a WiFi Internet service and Fixed Wireless Access (FWA) with both no-contract prepaid and subscription services using Mobile Money and other payment methods, providing a practical and scalable way to extend managed Internet services into communities where traditional telecommunications infrastructure is too costly to deploy.



Please request our accompanying report
Info@guest-internet.com

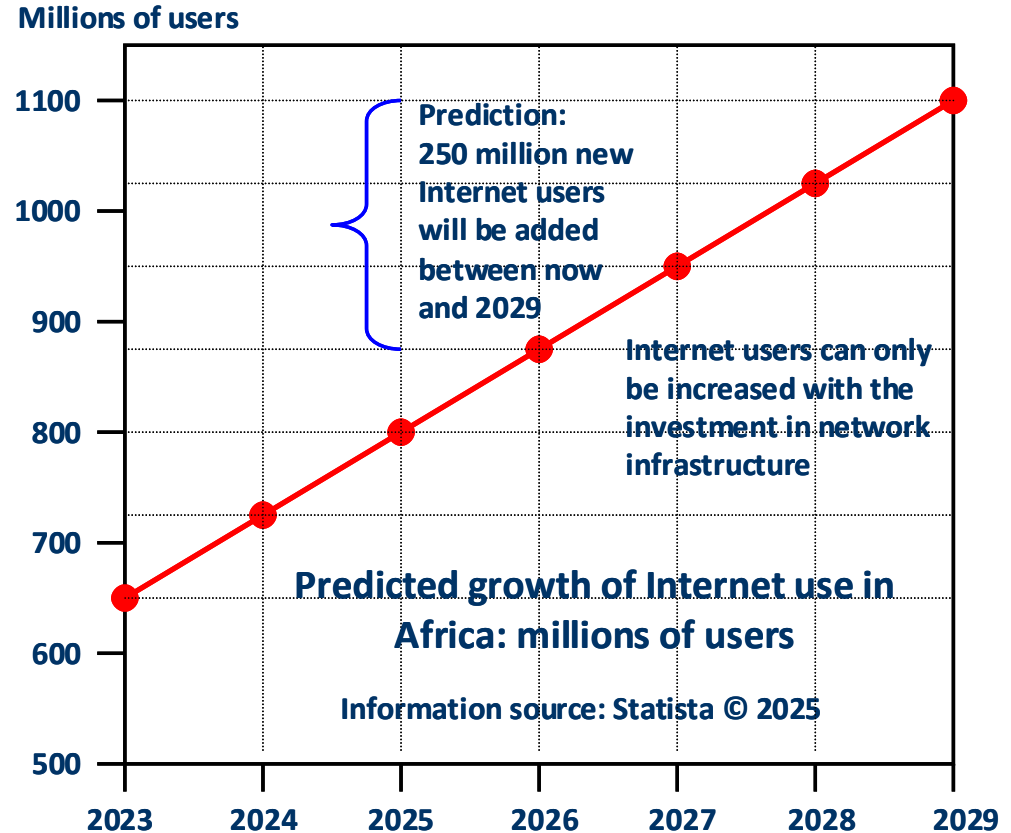
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27. Next steps, call a Guest Internet engineer
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1. Predicted growth of Internet demand

- Africa provides a good example of expected Internet market growth
- Statista prediction for the growth of Internet use throughout Africa
 - 2023: 645 million users
 - 2029: 1.1 billion users
 - 70% of Internet traffic originates from mobile smart-phones, 30% from landlines
 - In 2025 less than 50% of mobile phones are smart-phones
 - While Internet use in Africa is growing, the continent's online penetration rate remains below the global average
- Statista predicts that Africa will have a demand for 250 million new Internet users from 2026 to 2029
 - The rate of Internet use will continue increasing during the 2030's

Information provided by Statista © African Internet market prediction published 2025

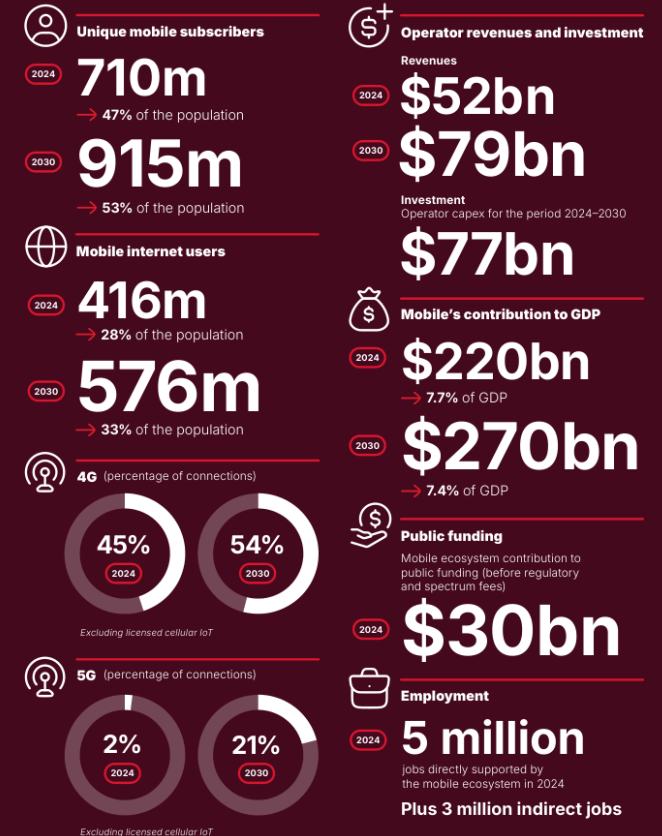


2. Projected expansion of 4G/5G phone-data services

- GSMA is the mobile operator association and provides very reliable market information with data from mobile carriers
- Prediction for the growth of mobile Internet users in Africa
 - 2024: 416 million users
 - 2030: 576 million users
- Prediction of increase of mobile Internet users 2024-2030 based on the build-out of 4G-LTE infrastructure:
 - 160 million users
- There is a discrepancy for Internet growth in Africa
 - Statista prediction: 250 million new Internet users from 2026 to 2029
 - **62.5 million new Internet users per year via any service**
 - GSMA expectation: 160 million new subscribers from 2024 to 2030
 - **22.8 million new Internet users per year via 4G-LTE**
- Each year there will be an additional demand for Internet access from **39.7 million** more people in Africa that cannot be met by 4G/5G infrastructure; **the additional demand can only be met with community WiFi Internet via satellite**

Info-graphic published by GSMA Intelligence.
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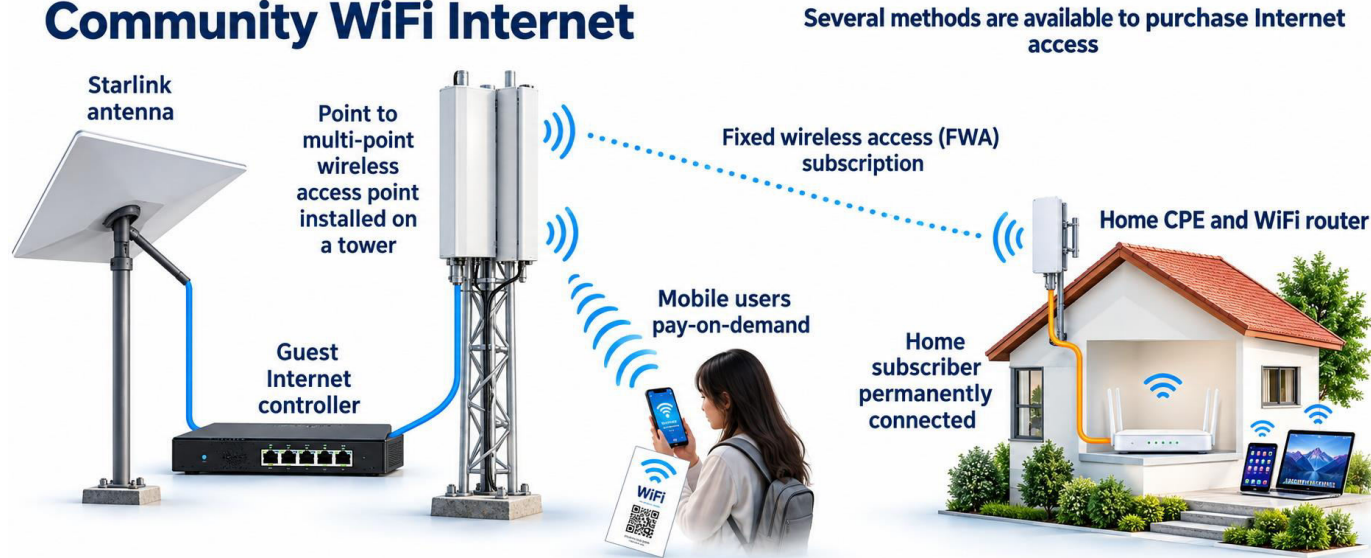
The Mobile Economy Africa



3. Satellite Internet can provide a WiFi Internet service for a community

- A community can be provided with an Internet data service via a Satellite antenna, such as Starlink
- The Telecom company subscriber administration system can authenticate and control users via the Guest Internet controller
- The WiFi Internet service provides mobile access and also fixed wireless access (FWA) to homes
- Users can be telecom subscribers and also limited time access via pay-on-demand

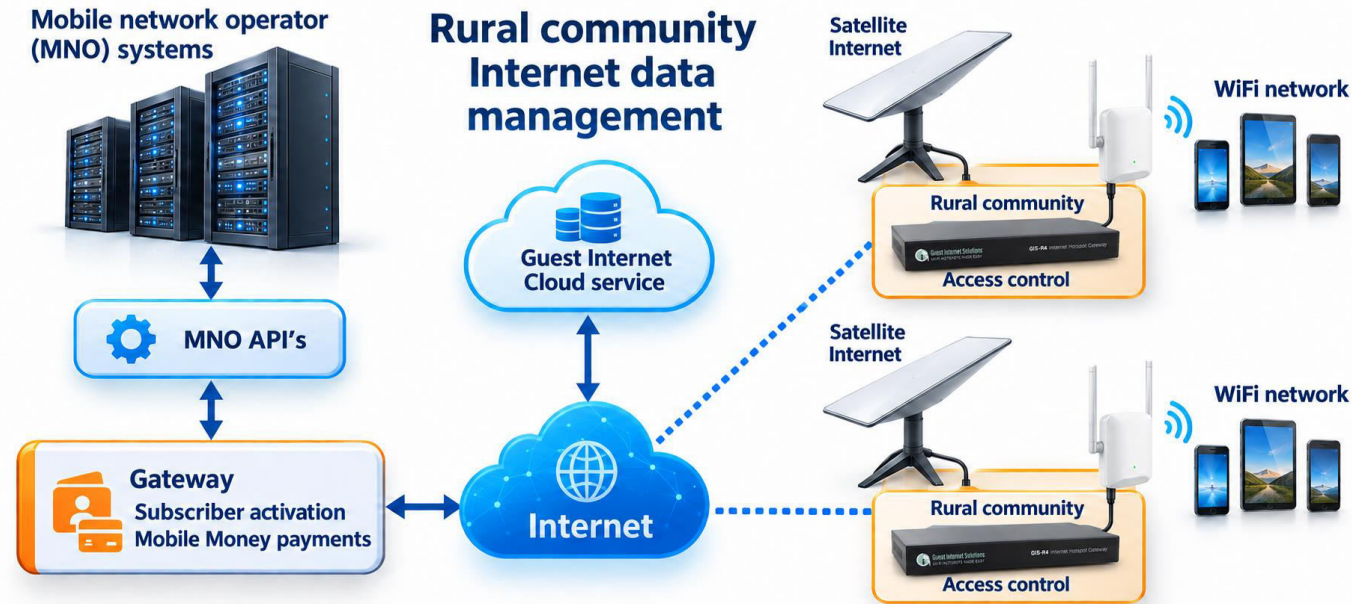
Community WiFi Internet



A satellite antenna with 150Mb/s downlink throughput can provide an Internet service for 100 or more concurrent users, which corresponds to a community of 500 people

4. A small budget investment for Internet data service in rural communities

- Budget and ROI constraints prevent a Telecom Company building 4G/5G towers in many rural areas
- Telecom technology developments permit the construction of many community Internet services for a very low cost
- The community Internet service is managed using the Telecom Company subscriber system and Mobile Money payment system



Community size to justify the installation of a 4G-LTE tower

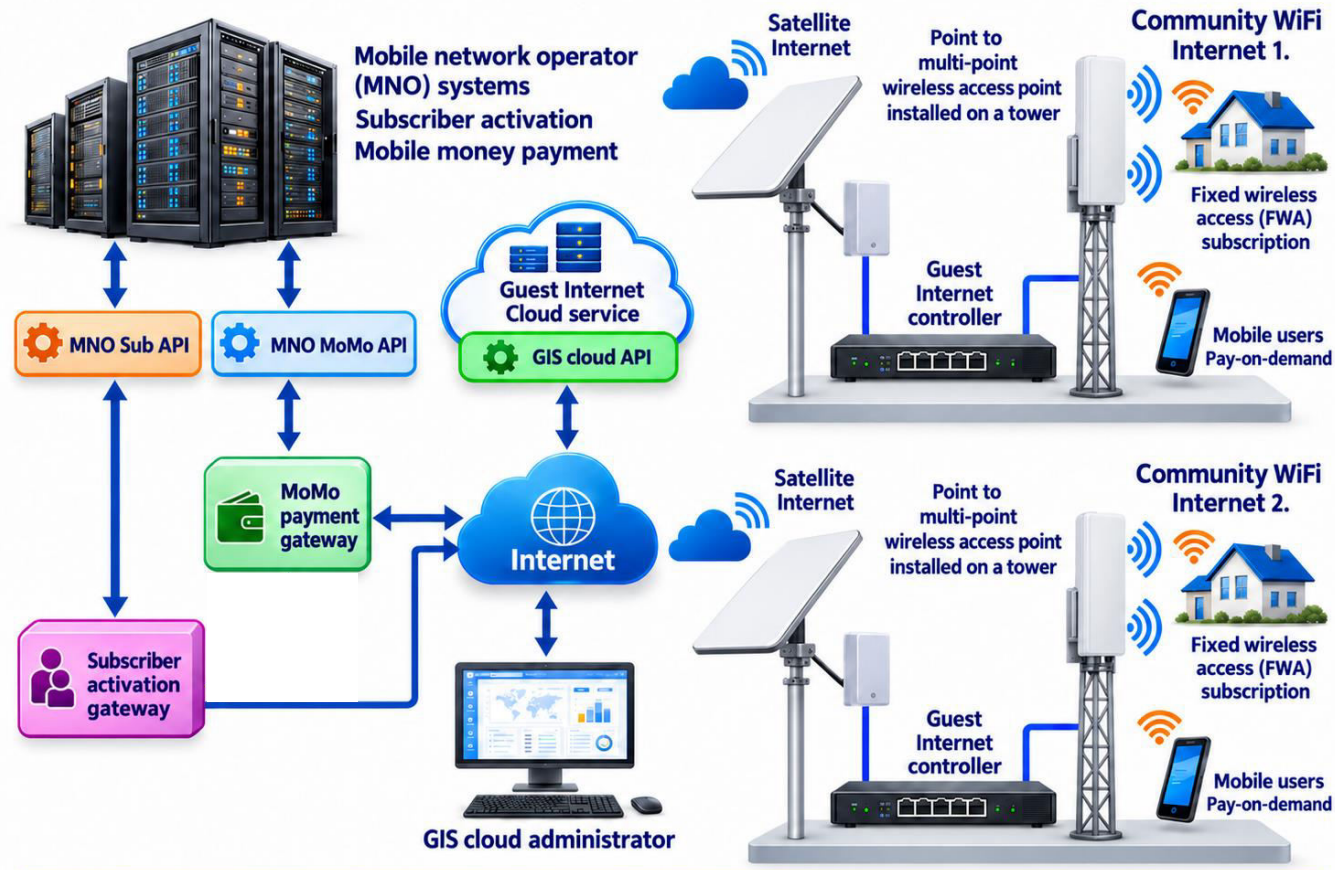
- Minimum population of 5,000 to 10,000 in coverage area
- Investment of \$250,000 + backhaul to the network

Community size to justify the Installation of WiFi Internet

- Minimum population of 200 to 500 in coverage area
- Investment of \$10,000 + \$250 for each home fixed wireless access (FWA)

5. Telecom Company systems can manage a community Internet via satellite

- The Telecom Company subscriber management system controls community subscriber access at each community WiFi location via the Guest Internet cloud API, that in turn communicates with the Guest Internet controller at each location
- Individuals at each community location can purchase limited time access to the Internet using Mobile Money via the MNO MoMo service, and can add any other credit service for payment.

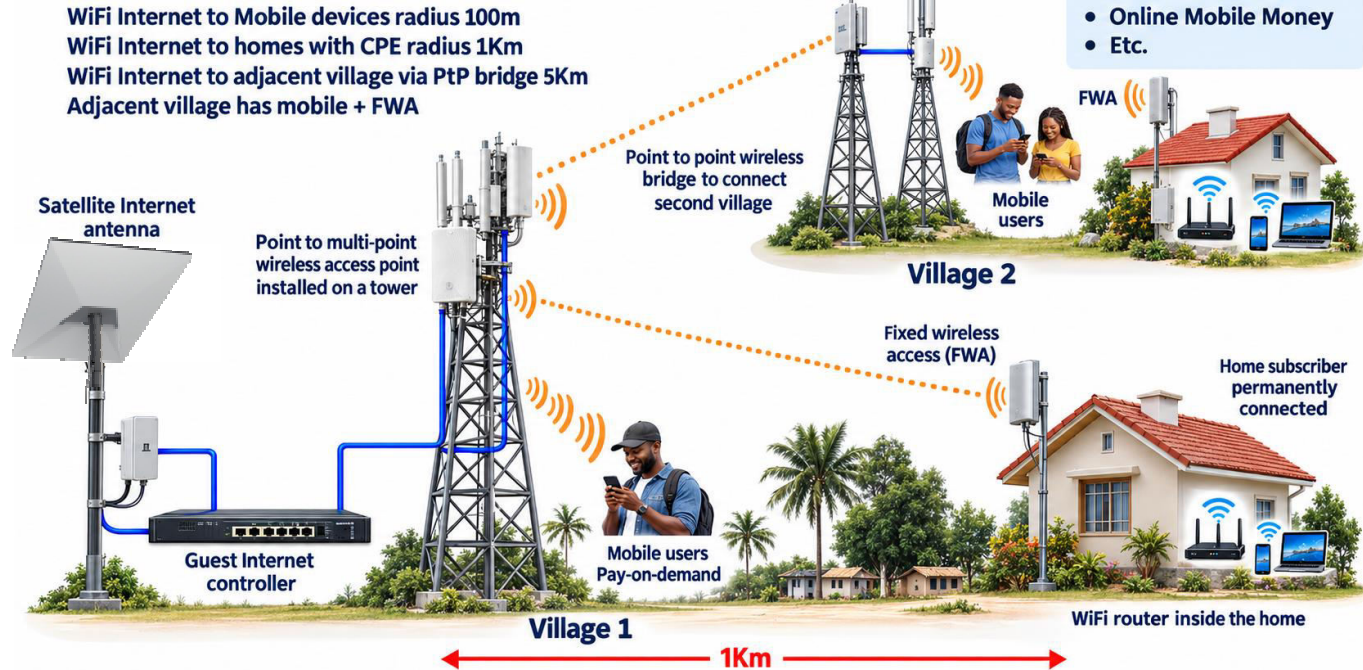


There is no limit to the number of controllers and locations that can be managed by the administration system

6. Overview of the community Internet infrastructure design

- Elements of the community network infrastructure
 - Satellite antenna (Starlink)
 - Guest Internet controller
 - Outdoor point-to-multipoint wireless access point
 - FWA home installation, CPE antenna plus indoor wireless router
 - Point-to-point bridge to link adjacent villages
 - Outdoor point-to-multipoint wireless access point at the adjacent village
- The Guest Internet cloud service manages and monitors all network elements and network access

Community Internet wireless distribution network



The community can be a village, town or a group of villages

Guest Internet offers free books that explain how to design and implement the WiFi network infrastructure

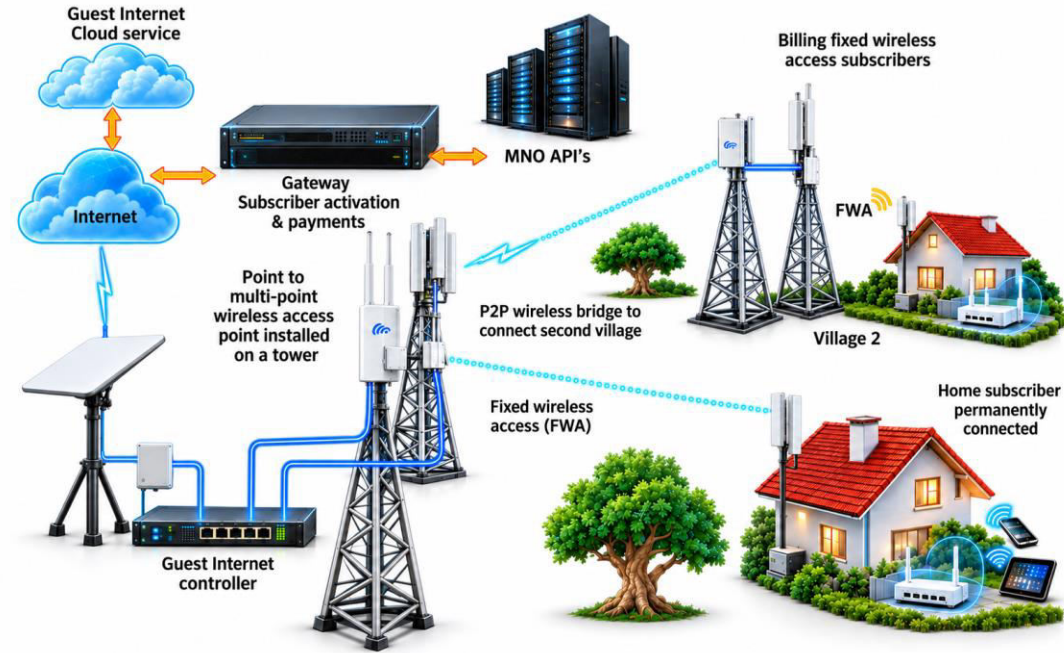
7. Community service provisioning: pay-on-demand and subscription

- There are two types of community Internet customers
 - Subscribers: always connected to the service, can be mobile users or residential fixed wireless access (FWA). Pay via the Telecom subscriber portal, or pay online using mobile money
 - Occasional users: purchase limited time access via a pay-on-demand method, pay online using Mobile Money or other credit, or purchase vouchers or scratch-off cards via retail
- Customer types and payment methods are managed concurrently by the Guest Internet cloud + controllers

Request the Guest Internet technical report that explains the deployment and use of Mobile Money to charge for the service

8. Methods of charging the customer for a subscription Internet service

- Subscribers can include
 - Mobile 4G/5G subscribers whose devices are also activated for authentication in any of the community WiFi services managed by the Telecom Company
 - Fixed wireless access (FWA) subscribers who can get residential data access via a 4G/5G tower or via the residential WiFi service
- Methods of charging subscribers can include
 - Current subscription payment methods supported by the Telecom Company
 - Payment online using Mobile Money or other credit service
- In the case where the subscription is past-due then the subscribers loses access to the Internet, the WiFi community network offers the subscriber the login page to purchase a time limited access (pay-on-demand)



Mobile network operator (MNO) subscriber management of WiFi community fixed wireless access (FWA)

9. Methods of charging the customer for a pay-on-demand Internet service

- Purchase Internet access online using a credit payment method
- The popular credit payment method in Africa is Mobile Money
 - Mobile Money (MoMo) is used in many locations to charge for the WiFi community Internet service
- Several credit payment methods can be offered
 - E.g. MoMo, credit card, debit card, etc.
- The login page provide a list of duration and cost alternatives for the buyer
 - Each duration has a corresponding maximum up/down data speed limit and optional and up/down data cap (rate plan)
- The customer selects the preferred duration option and is then shown the payment screen to pay with the chosen method

Wireless (Wi-Fi) Internet Hot Spot
Community Internet Service

Provide an access code or purchase access online
An access code will be provided after purchase

Purchase an access code voucher and enter the code

- Duration of access
- Maximum down/up data speed

Request a code from reception to login to the Internet

..... **Connect & agree**

Purchase token with PayPal™

You must agree to our [terms and conditions](#) to use this service.

Click the button then select your purchase from the list

1 hour	\$2.00
4 hours	\$5.00
1 day	\$10.00
2 days	\$15.00
4 days	\$20.00
1 week	\$25.00
2 weeks	\$40.00
1 month	\$60.00
3 months	\$100.00

Enter payment information

When a subscriber account is past due the subscriber loses Internet access and the login page is displayed for an on-demand Internet purchase

The WiFi login page can provide access to the Telecom portal without authentication to make a subscription payment

10. Cash sales methods for a pay-on-demand Internet service

- Print vouchers for cash sales
 - Up to 10,000 vouchers, printed 16 per page

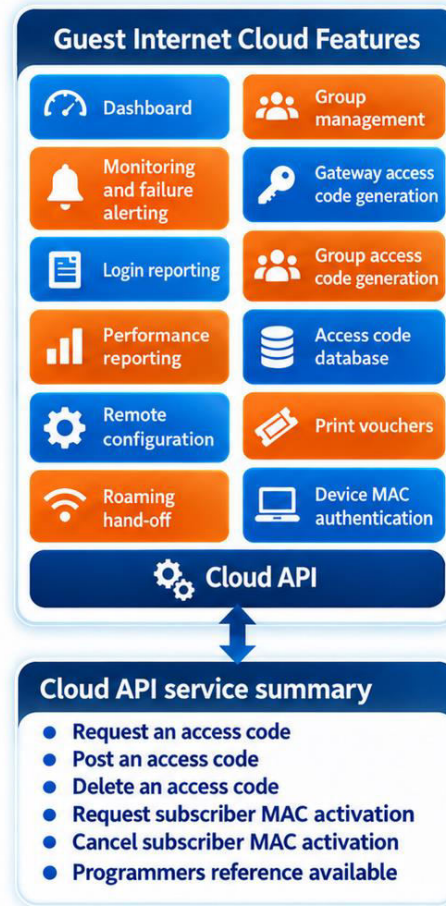


- Print scratch-off cards for cash sales
 - Download random codes in CSV format

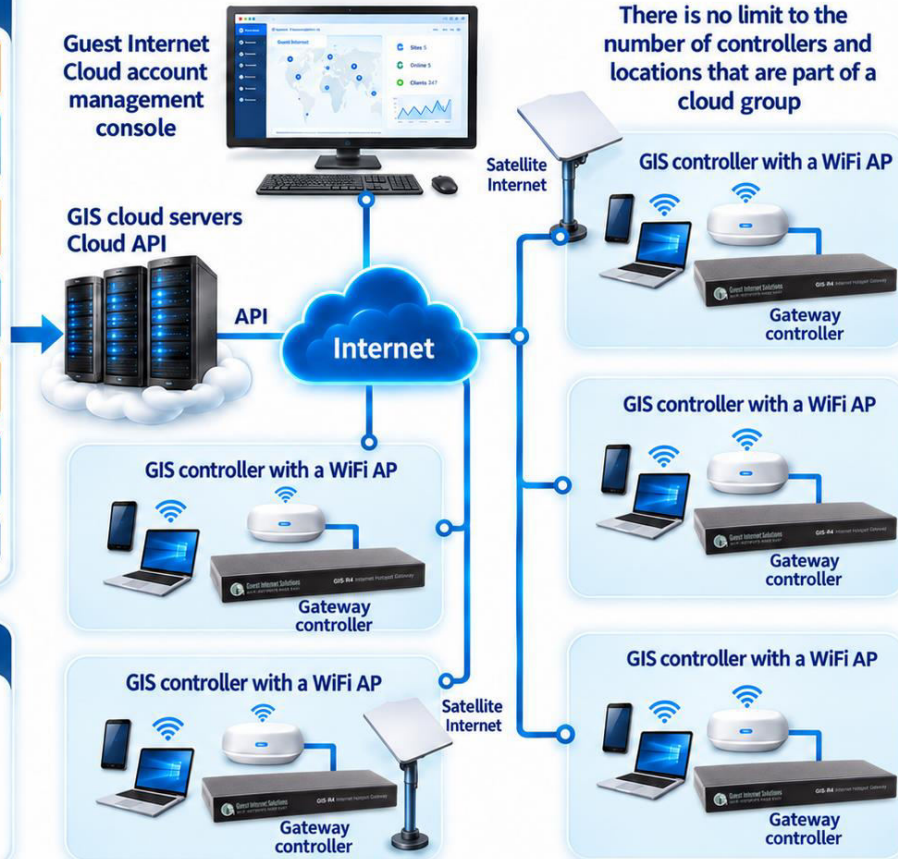


11. Group cloud management of many controllers in multiple locations

- Add an unlimited number of controllers to one cloud account
- Manage the controllers as groups
- Generate usage reports for groups
- Create access codes for groups that will be authenticated by any controller in that group
- Monitor all controllers for failure and issue alerts
- The cloud API can receive commands for controllers and groups

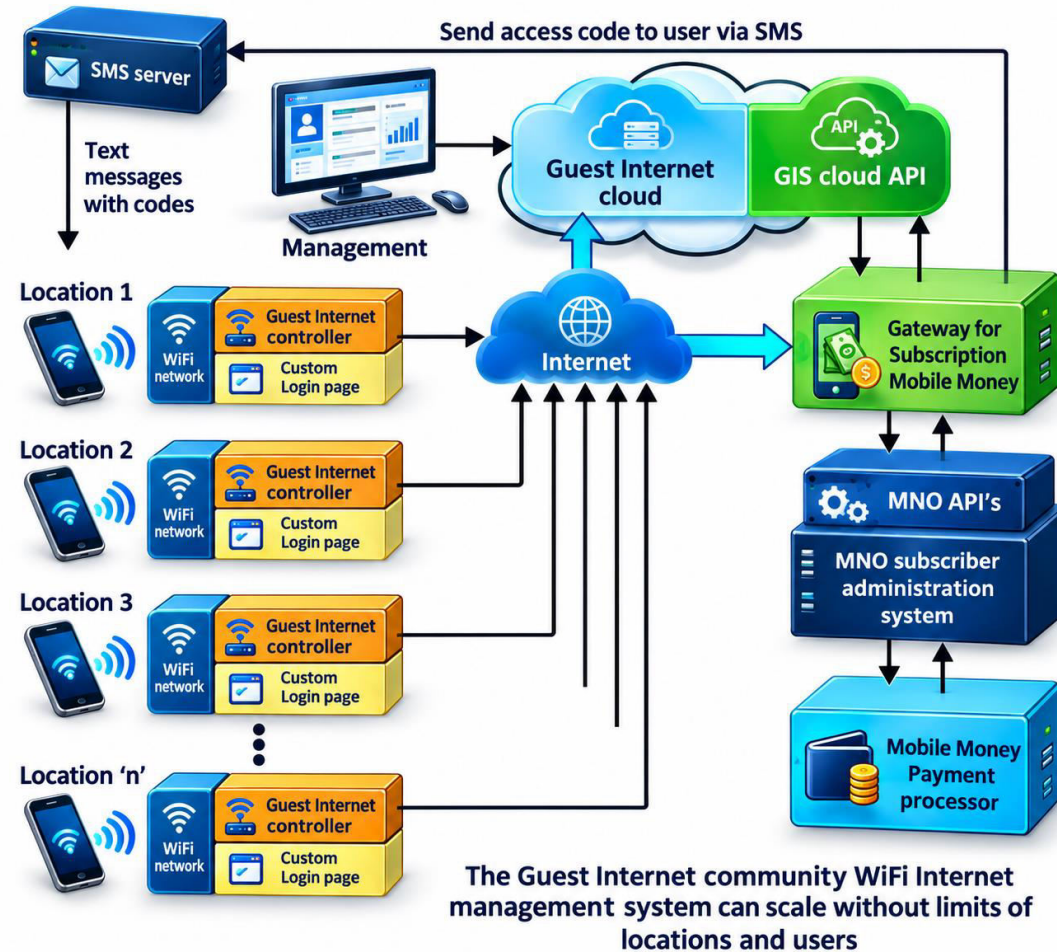


Guest Internet cloud group management



12. Scale guest Internet from a small village to a countrywide network

- The Guest Internet cloud management system has no limits for expansion of the network and service area
 - Unlimited controllers per cloud group
 - Unlimited cloud groups
 - Unlimited locations
 - Unlimited users
- The NMO subscriber management and Mobile Money payment systems can provide service for an unlimited number of locations and an unlimited number of users via the gateway that manages a cloud group
- The subscription and payment gateway can also be configured to manage multiple groups each with different branding



13. A cloud group issues access codes and can set device authentication

- Manage access codes via the cloud UI or via the API
- Manage access codes for controllers and for groups of controllers
- Request a quantity of random access codes for distribution
 - Set duration
 - Set max up/down speeds
 - Can set up/down data caps
 - Set number of users/code (1)
- Set a MAC address for a subscriber CPE
- Mobile money payment requests codes via API calls

Service Status

1 Step 1: select the group that the codes will be generated for

2 Step 2: select the code parameters and the number of codes to be generated

3 Step 3: select the option to print codes on vouchers or download codes to print on scratch-off cards

The access codes can be authenticated by any GIS controller that is part of the cloud group that the codes were generated for

The Guest Internet cloud service is free and included with each gateway controller

14. Billing software calls the GIS cloud API to sell access at many locations

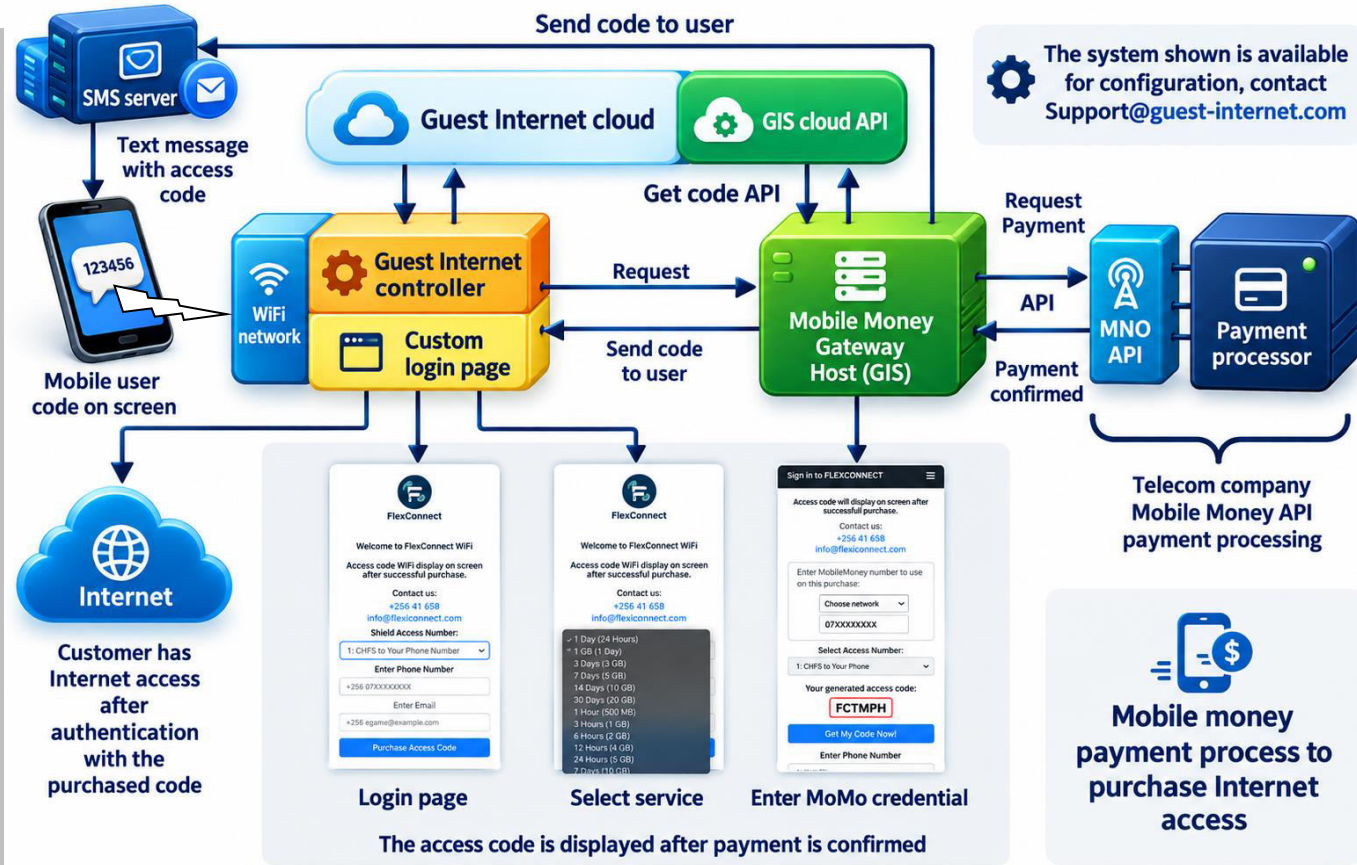
- A billing software can charge for Internet access via the Guest Internet cloud API for any controller or any group of controllers
- An unlimited number of controllers in a group are at different locations
- An access code purchased at one location can be used at a different location
- Each controller has a custom login page that interfaces with the billing system server software



Integration of the Guest Internet cloud with the MNO subscriber management

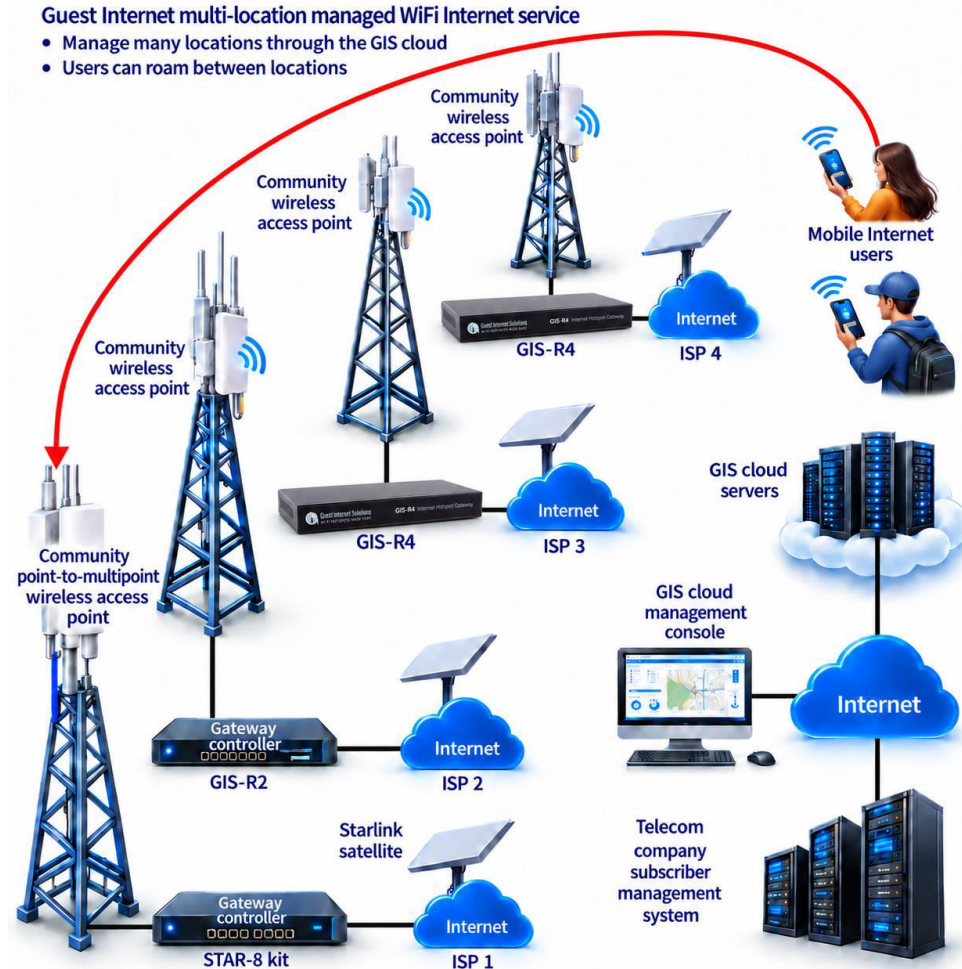
15. Integration of the cloud API for online purchase using Mobile Money

- The following procedure to purchase Internet access using Mobile Money
 - User connects to the login page
 - User select the preferred option of duration and cost
 - The user is passed to the Mobile Money gateway host to provide the Mobile Money credentials
 - The gateway host communicates with the MNO API for the payment processor to send the credential and value
 - If the MNO API responds that the payment is accepted then the gateway host calls the cloud API to request a code
 - The code is presented to the user and sent via SMS



18. Roaming between locations where the controllers are part of a group

- When Guest Internet controllers are added to a group, the group can be configured for roaming between controllers in the group
 - Controllers and wireless access point are installed in different locations and each location is connected to a different ISP
 - The roaming process identifies each device by the device MAC address and the cloud detects when a device has moved from one controller to another controller
 - The cloud managed the device hand-off process from one controller to the next
 - Device roaming information is stored in each controller, if one controller is disconnected from the network then roaming information is lost
- Device roaming tracks the device using the MAC address, devices with randomized MAC cannot roam as the MAC changes with each connection, however randomized MAC can be disabled

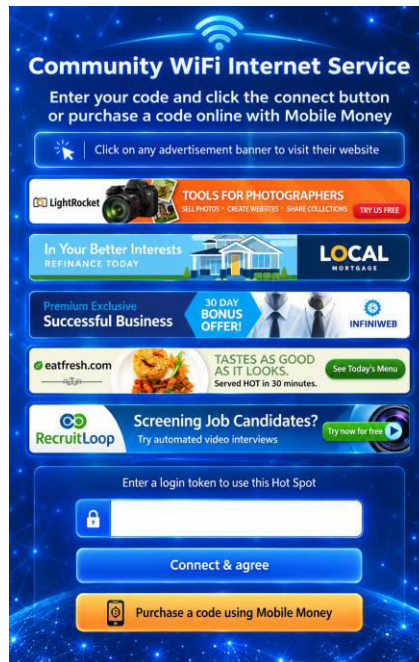


19. Community WiFi Internet service branding, messaging and advertising

- The login screen is always presented to pay-on-demand (no-contract-prepay) for the customer to purchase one of the limited time options
- Subscribers: remain connected to the Internet and are not presented with the login screen, however when past-due there is no Internet access and the login screen is presented to make a purchase
- The login screen give access to the Telecom portal and any other advertiser portals

WiFi login page examples

Mobile device screen



Laptop screen

The community WiFi login page is customized and branded by the MNO, and includes a button for direct access to the MNO payment portal

The login page design adapts to the device screen size (responsive design)

20. The user view for access to the WiFi Internet service

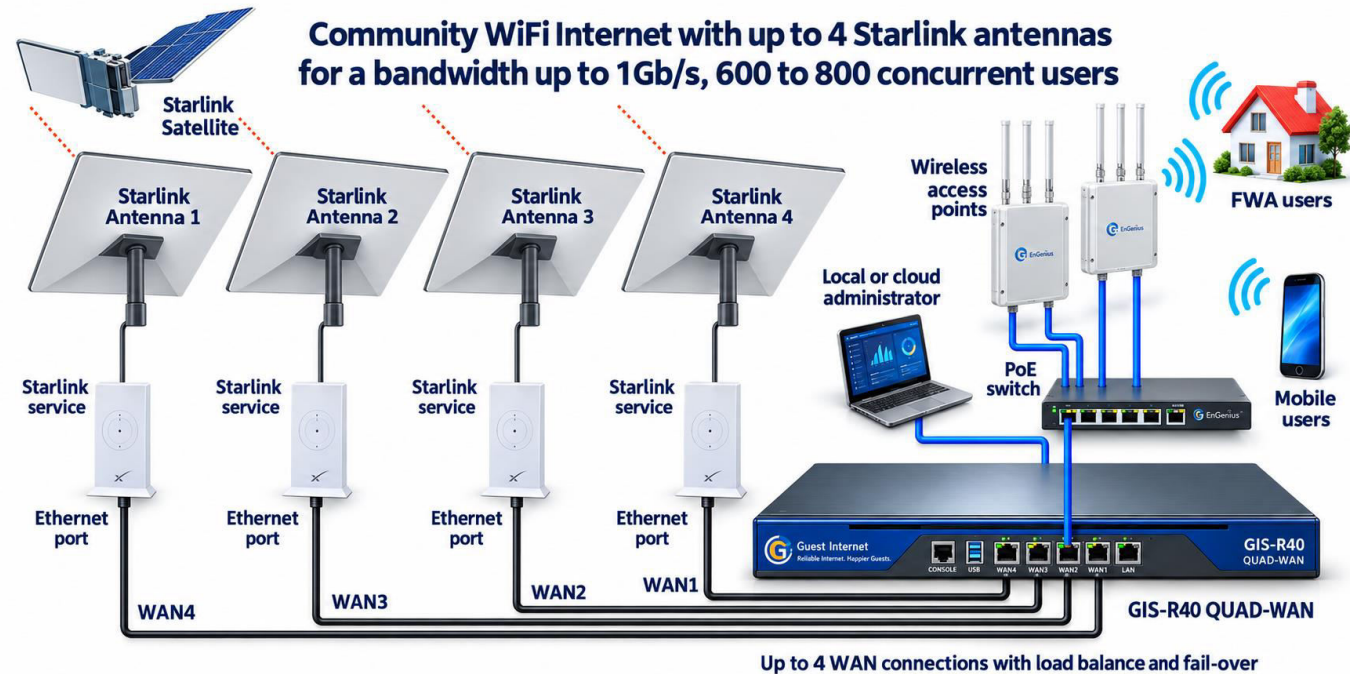
- A mobile device that has been authenticated to access the mobile 4G/5G network can also be authenticated to access the community WiFi network
 - However WiFi randomized MAC must be disabled
 - A mobile device that is not authenticated onto the 4G/5G network can have the WiFi MAC authenticated onto the community WiFi Internet network
- The FWA CPE device MAC is authenticated onto the community WiFi network



Any mobile device or FWA installation can be authenticated onto the WiFi Internet network when the MNO adds the device MAC (mobile or FWA CPE) to the Guest Internet cloud via the cloud API gateway

21. Internet for larger communities using multiple satellite antennas

- The limit for concurrent access to the community WiFi network is determined by the data speed of the Internet service
- The number of concurrent users can be increased by adding a second, third or fourth ISP connection to a Guest Internet controller
- The controller has load balancing between ISP's and also fail-over where users are transferred to a working ISP if one ISP fails

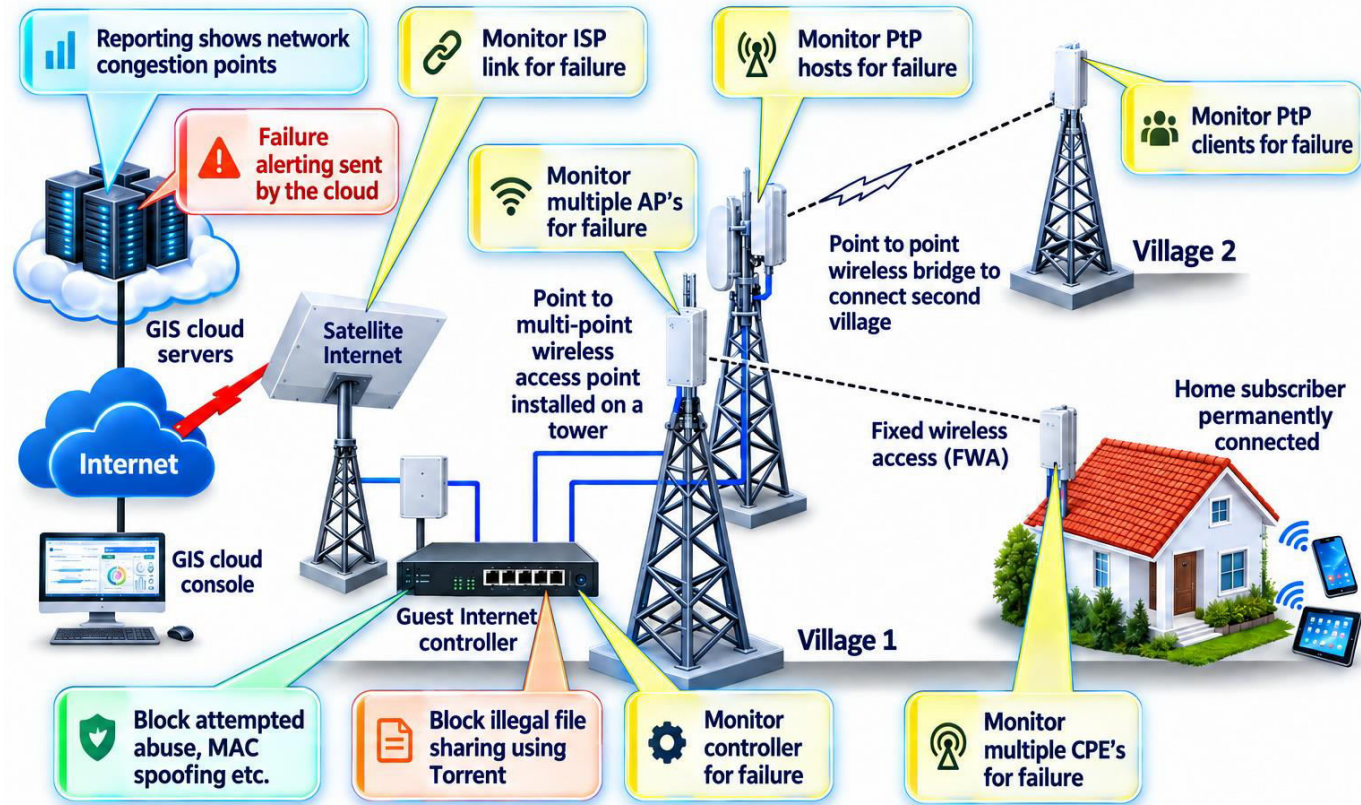


The figure shows four Starlink antennas connected to a Guest Internet GIS-R40 controller, each Starlink has an average download throughput of 150Mb/s so the total throughput is 600Mb/s, Starlink has higher data speeds available

22. Additional features that ensure a reliable and compliant community service

- Guest Internet cloud and controller management has a broad range of features that are important for a Telecom Company that provides a Community WiFi service, some are listed here
 - Component failure at all point of the WiFi network
 - Failure alerting that can integrate with the Telecom system
 - Block Torrent use to prevent illegal file sharing
 - Block may types of attempted abuse of the service
 - Cloud reports that include network congestion

Guest Internet: some of the additional features for community WiFi Internet



23. Telecom Company investment schedule for a rural community data service

- Investment and operating costs for each community are calculated in three parts
 - Base system
 - Addition of FWA customers
 - Monthly operating cost
- The base system provides WiFi for mobile devices and for FWA, and includes
 - Satellite Internet antenna
 - Guest Internet controller
 - PtMP wireless access point
- FWA installation per home
- Service plan for the satellite antenna
 - Plus additional monthly large volume data charges

Base Station: users connect with mobile devices

Item	Qty	Function	Installation	Value
Starlink	1	Satellite Internet antenna + service plan	On tower	\$300 antenna
Star-8 kit	1	GIS-R4 controller + AP1200W wireless AP	Cloud account is included	\$450.00
Tower	1	Height required for Starlink and AP1200W AP	Minimum for visibility	\$2000.00
Power	Option	Solar power of 500W when grid power N/A	Base of tower	\$2000.00
Install		Man-hours installation service	Work at the site	\$5000.00
			Total base station	\$9750.00

Home connection: fixed wireless access (FWA)

Item	Qty	Function	Installation	Value
Star-4 kit	1	Home equipment, CPE + wireless router	In home	\$110.00
install		Technician installation 2 hours	Add truck roll	\$125.00
			Cost per home	\$235.00

Operating cost: monthly

Item	Qty	Function	Period	Value
Starlink	1	Service agreement per satellite antenna	Per month	\$150.00
Maintain	1	Service and maintenance budget per site	Per month	\$150.00
			Add extra for transport	\$300.00

**The costs presented in the table above are for each community
In addition there are one-time deployment costs for the subscriber
management gateway and the Mobile Money online payment gateway**

24. The business case for community WiFi vs. a 4G/5G tower

- A 4G service cannot be justified for small communities
- A WiFi data service can be justified for a community 1/10 the size and for 1/25 of the cost
- With Starlink there is no obstacle on the physical location of the service

	4G-LTE + network connection	GIS managed satellite WiFi
Infrastructure install cost	> \$250,000	< \$10,000
Network connection cost	> \$10,000 (PtP microwave)	< \$300 (Starlink antenna)
Annual operating cost	> \$10,000 (maintenance)	< \$2,000 + (service plan)
Minimum service area	Population 5000 minimum	Population 500 minimum
Scalability	Tower has fixed throughput	4x adding satellite antennas
Manage subscribers	Yes	Yes
No-contract pre-pay	Yes	Yes
FWA customers	Yes	Yes
Roaming	4G and WiFi	WiFi roaming only
Expand customer base	Limited by capital expense	2.5x greater than 4G
Deployment time	Greater than 3 months	Less than 1 week

25. Nine drivers and opportunities for Telecom Company growth

- | | | |
|---|---|--|
| 1 A Telecom Company can provide an Internet data service for small to medium community WiFi Internet services that is very easy to install and maintain, with Telecom Company branding and access to the Telecom company services. | 2 WiFi community services can include fixed wireless access (FWA) over WiFi for residential and business users who wish to connect to the community network, using either a subscription account, or with a pay-on-demand account. | 3 WiFi service customers can purchase limited-duration community WiFi Internet access via a pay-on-demand service with Mobile Money as one of the credit payment options available, and add other credit payment options as required. |
| 4 WiFi service customers can purchase a subscription for the community WiFi Internet service. | 5 Mobile 4G/5G subscribers can add a subscription to any WiFi Internet location supported by the Telecom Company. | 6 The Telecom Company has very low installation and operational costs to provide the community WiFi Internet service |
| 7 The community WiFi Internet installation has a one-click user access to the Telecom Company customer CRM portal, even when the user is not authenticated onto the network and has no Internet connection. | 8 The Telecom Company can provide telecommunications access in regions where it is currently not possible with existing 4G-LTE/5G technologies due to geographical and cost constraints, customer acquisition in areas where currently not possible. | 9 Increase the Telecom Company customer installed base with additional FWA customers and also mobile phone subscribers who use the data service; for a very low additional investment cost. |

26. Five technical features with business benefits

- Five technical features that have direct benefits for the Telecom Company business
 - The technical features listed are just some of the features that Guest Internet solutions offer
 - Contact a Guest Internet engineer to discuss specific project requirements
1. **Scalable solutions:** The WiFi Internet management system has no limit for the number of community WiFi Internet locations where each location can have a difference ISP connection.
 2. **Full control:** Each community WiFi Internet installation is managed through the Telecom Company subscriber management system.
 3. **WiFi roaming:** The community WiFi Internet service supports customer roaming between locations so that a payment for Internet access at one location will provide Internet access at other locations within the group of controllers.
 4. **Failure alerting:** The WiFi network management provides failure monitoring of all network components at each community WiFi Internet installation and also monitoring of the ISP services, with failure alerting that can be interfaced with the Telecom Company Network Management System (NMS) or Operations Support Systems (OSS) platform.
 5. **Traffic use:** Monitor the data traffic and customer use at each community location to identify locations that will justify the installation of a 4G-LTE tower to provide voice and text services in addition to data services. Calculate the tower ROI based on the current and projected user traffic.

27. Next steps, call a Guest Internet engineer

- A Telecom Company representative or Telecom Company vendor can request a Zoom call with a Guest Internet engineer to discuss the viability and implementation of a community WiFi Internet project
- Guest Internet provides several sources of information to familiarize prospective customers with the Guest Internet technology for community WiFi Internet systems including,
 - Report: Telecom systems manage rural satellite Internet
 - PowerPoint presentation: Telecom systems manage rural satellite Internet
 - Market information: social media channels
 - Technical articles and books
 - Video presentations available via YouTube



Contact Guest Internet to request project support

Support@guest-internet.com

Discuss project requirements with Guest Internet engineers

Call in a local consulting Partner?

Formulate the project design with the customer

Accompany the project through the deployment phase

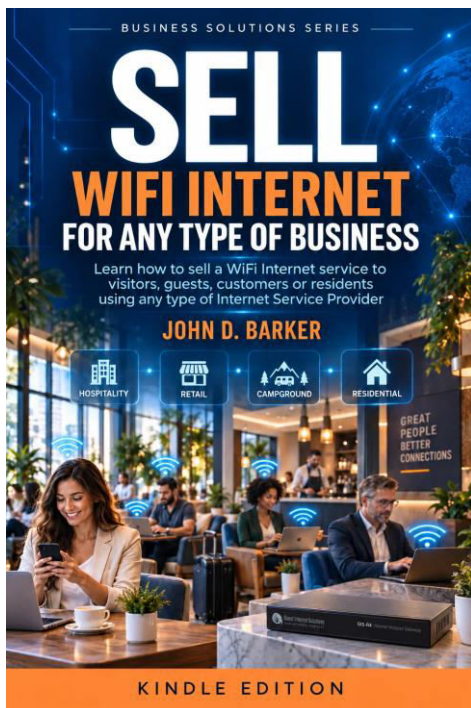
28. Additional Information resources

Books that teach the technical skills to deploy community Internet

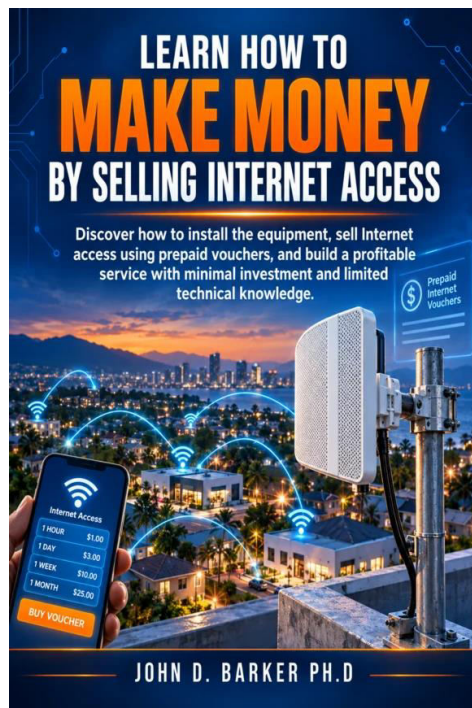
- Four books are available as free PDF downloads
 - These books have been downloaded thousands of times, two of the books are also available in Spanish

Contact support@guest-internet.com to request the download links for these books

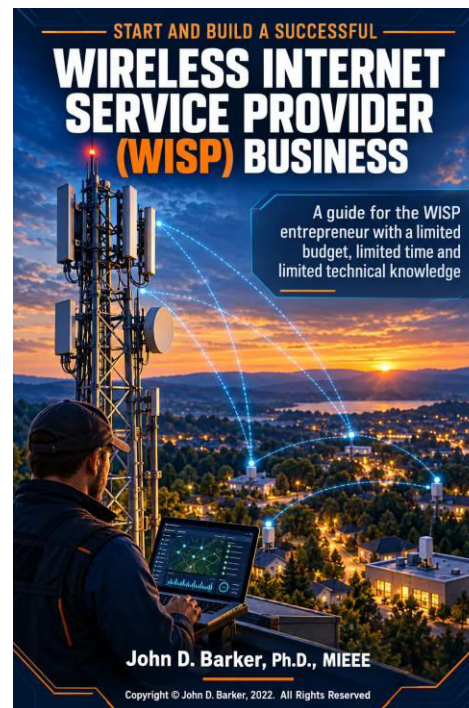
FREE E-BOOKS



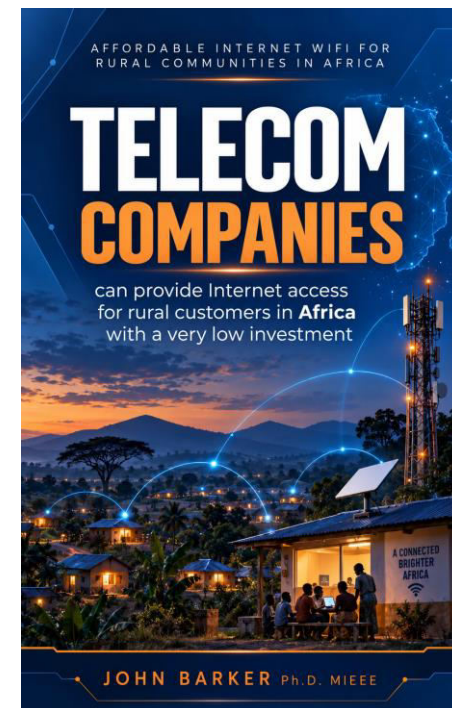
214 pages



149 pages



342 pages

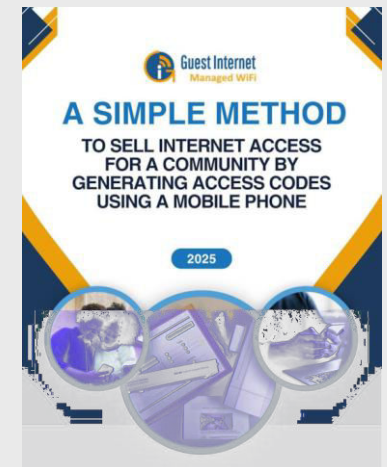
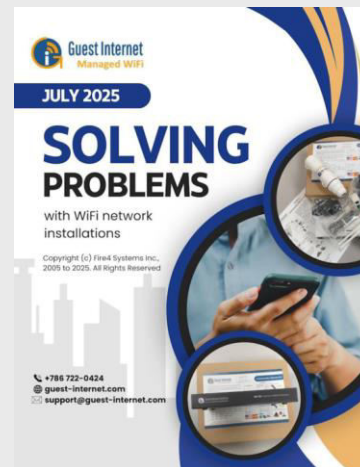
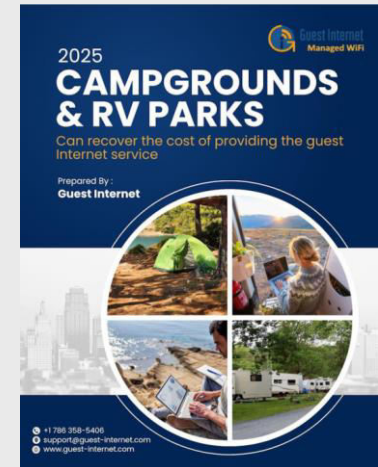
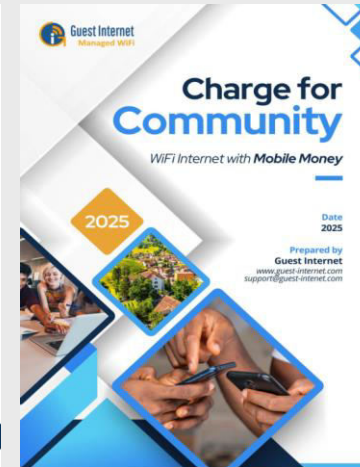


98 pages

Technical documents that provide specialist knowledge

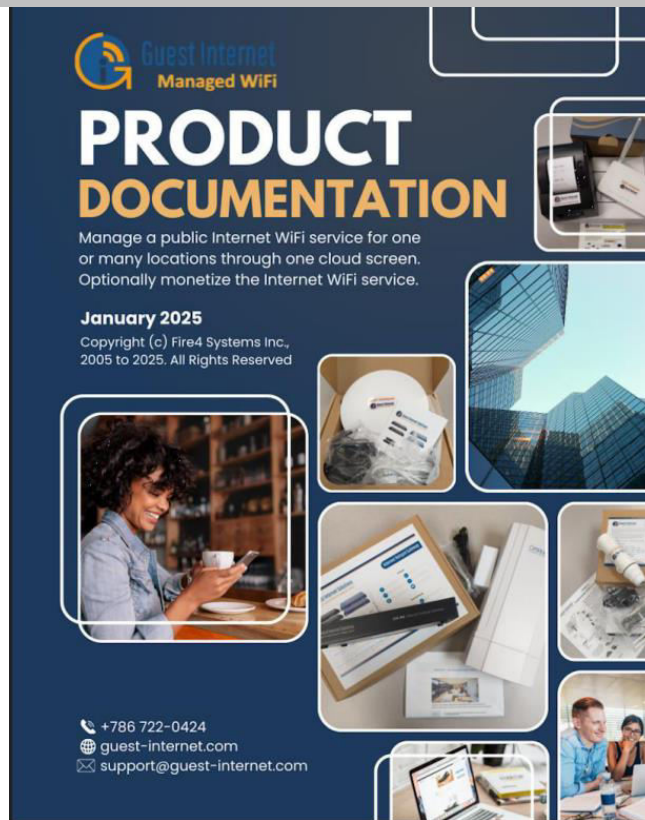
- How-to guides that help people decide what type of Internet service they want to provide for the community and how to start an Internet service
- New documents are produced frequently

Contact
support@guest-internet.com
to request these documents



Manuals for installation, operation and management of the service

- A comprehensive 217 page document that explains how to use the products and software in easy to read language
- Important features are explained
 - Share up to four Internet connections
 - Methods to charge for the Internet service
 - Protecting the service from abuse and preventing misuse
 - Brand the Internet service, advertise
 - Monitor the service and components for failure with alerting
 - Data traffic analysis reports
 - Central cloud management of many locations



Contact
support@guest-internet.com
to request the manuals

**Available in English
and Spanish**



Video training courses for equipment installers

- Target audience:
 - Telecom technicians who with to install community WiFi Internet projects
 - People who have basic computer network skills and wish to expand their knowledge to install Internet access for communities as a business
 - Community individuals who started with no technical knowledge and who have studied by reading the three books and want to move on to install the Internet service for their community
- Video recordings for individual study
 - Streaming from our YouTube account
 - https://www.youtube.com/@guest_internet

Contact support@guest-internet.com to request information about the latest training videos



INFORMATION

Guest Internet website

- www.guest-internet.com
- Guest Internet is on social media
- <https://www.linkedin.com/company/guest-internet>
- https://www.instagram.com/guest_internet/
- <https://www.facebook.com/guestinternet/>
- https://twitter.com/guest_internet
- https://www.tiktok.com/@guest_internet
- Guest Internet Spanish Group
- <https://www.facebook.com/groups/guestinternet>

BUY

Guest Internet USA worldwide distribution

- www.wispzone.com

Guest Internet Africa product distribution

- www.donintellisys.com

Guest Internet Oceania product distribution

- <https://shop.smarttechnology.com.sb>



Telecom Systems Can Manage Rural Community Satellite Internet Services

Telecom companies can expand affordable Internet services into underserved rural communities with minimal infrastructure investment. Satellite Internet, Guest Internet cloud services and Broadband Network Gateways integrate with telecom systems to authenticate subscribers, manage service plans and process prepaid or subscription payments using Mobile Money and other methods.



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Satellite

