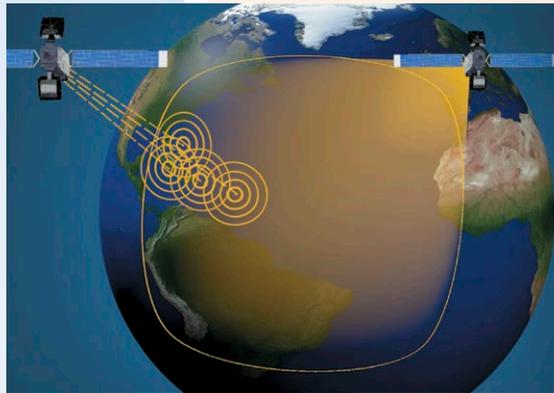


More

Innovation
Speed
Possibilities



MTN NEXUS™
High-Speed Connectivity Anywhere

People expect to be connected everywhere. Vacationers want to share their experiences with friends and family—and some need to touch base with the office. Plus, crew members need a constant link back home to stay happy and productive.

Mobile Usage is Skyrocketing

According to recent research, mobile bandwidth consumption will continue to grow exponentially, reaching unprecedented levels by 2016*:

- The average tablet will generate 4.2 GB of traffic per month
- The average smartphone will generate 2.6 GB of traffic per month, a 17-fold increase over 2011
- Tablets will generate almost as much traffic as the entire global mobile network did in 2012
- Two-thirds of the world's mobile data traffic will be video
- Mobile-connected devices will exceed the world's population (10 billion vs. 7.3 billion)
- One quarter of mobile users will own two or more mobile-connected devices

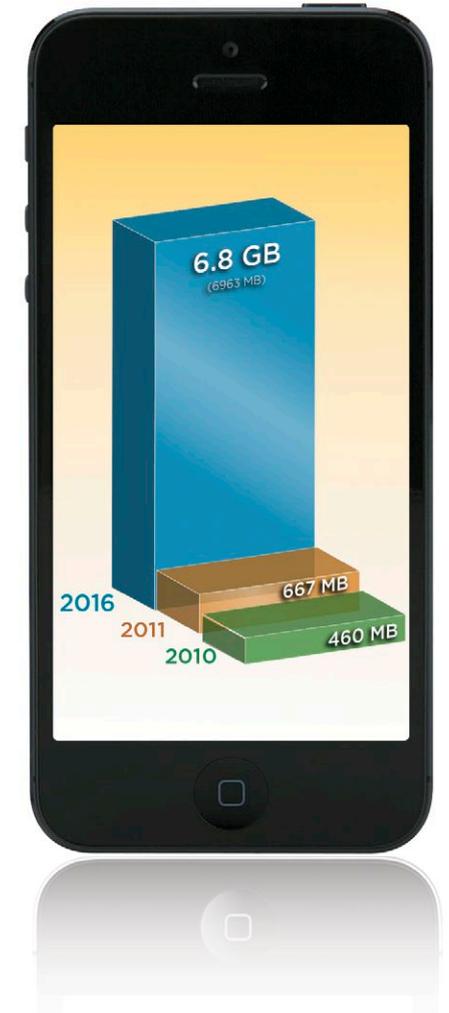
*Source: Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2011–2016

Our Challenge in the Cruise Industry

The real challenge we face today is how to give passengers and crew a connected experience identical to what they have at home—not only because they want it, but also because they expect it.

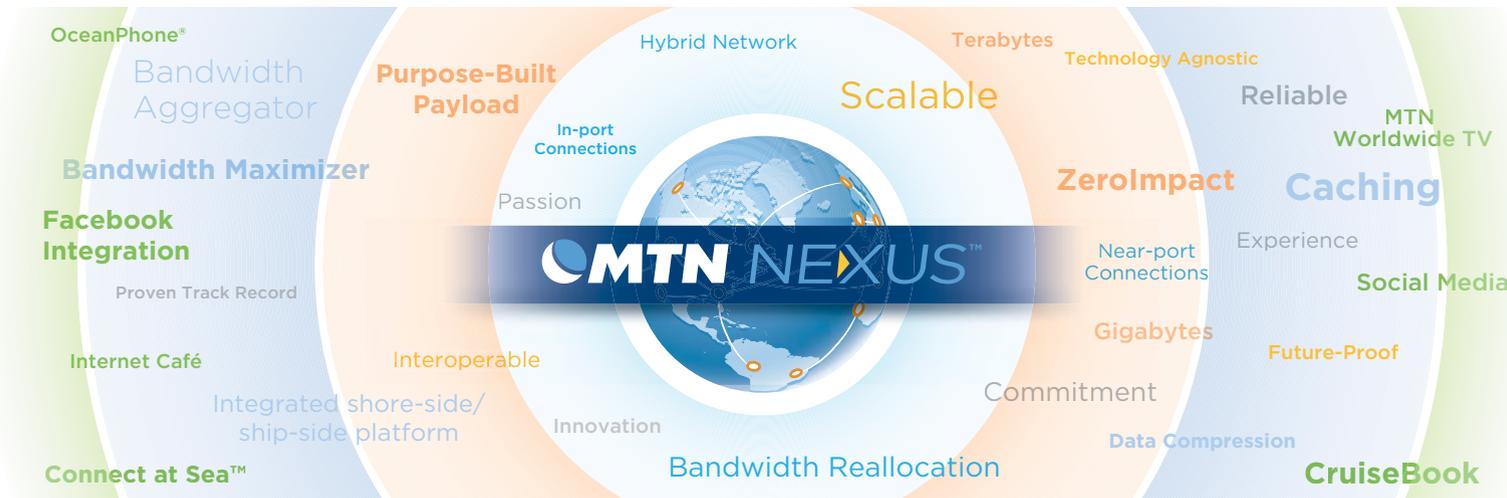
With mobile devices about to outnumber the world population, we must quickly start providing high-speed access at an affordable price.

Monthly Average Traffic (Smartphone and Tablet Combined)*



The Solution

The MTN Nexus™ network meets today's challenges head on, delivering a connected experience that rivals a luxury resort on land. Our sophisticated, hybrid satellite and wireless ecosystem enables the cruise industry to enhance the total user experience, seamlessly and affordably providing high-speed communications at sea and in port.

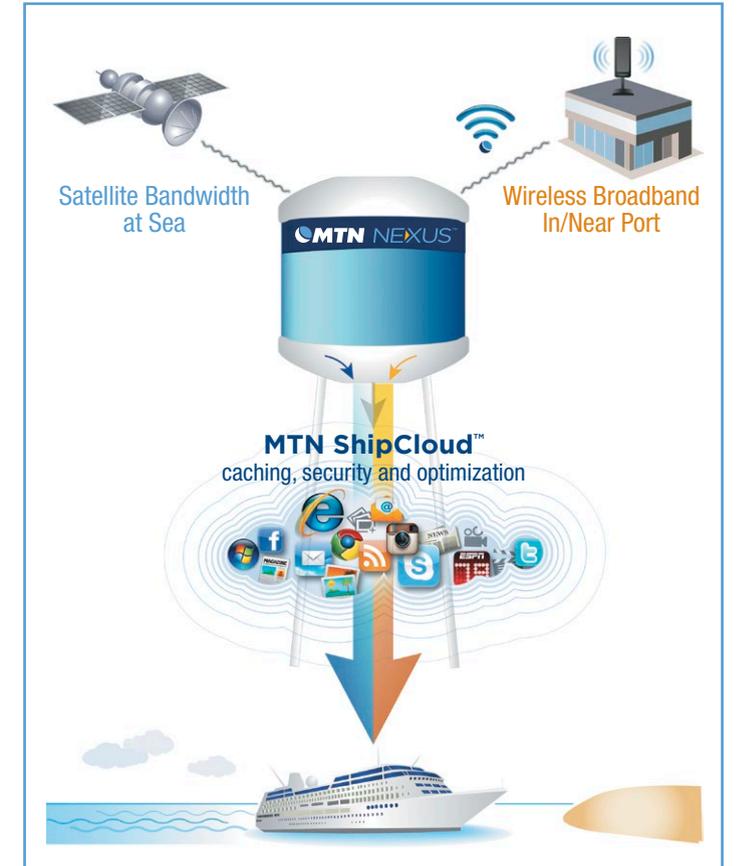


A high-speed, global network for continuous access to content and applications, managed and optimized on an advanced cloud-computing platform.

Benefits at a Glance

- **Minimize costs.** Achieve unprecedented levels of throughput at sea, while lowering bandwidth costs per Mbps. Volume purchases, bandwidth pooling, and seamless switching between VSAT and wireless broadband all help to drive costs down and efficiencies up.
- **Increase revenues.** Integrated solutions will allow us to jointly develop new business models, driving a better user experience while reducing costs and increasing revenues.
- **Enhance the user experience.** Deliver connection speeds and apps that rival the “at-home” experience to passengers and crew. Offer them new, value-added products, services and applications—such as customized Facebook packages, streaming TV to mobile devices and an entirely new Internet Café portal.
- **Avoid infrastructure investments.** Meeting the skyrocketing demands for connectivity, as new technologies enter the market, will be as simple as “adding on” versus “rebuilding” infrastructure with our technology-agnostic platform.
- **Keep up with demand.** Designed intentionally to be the world’s most interoperable network for the cruise industry, our platform will allow access to multiple bandwidth sources from MTN and others, providing the greatest flexibility to keep up with escalating demand.
- **Partner with the industry leader.** For more than 25 years, MTN has been the leading communications partner to the cruise industry. Take advantage of our proven expertise and significant infrastructure investments and offer unprecedented products and services and an unforgettable onboard experience.

In short, MTN's mission is to develop the best, most robust solutions—unconstrained by proprietary technologies—to meet the growing needs of your users. And as their needs change, we will collaborate closely with you to keep you at the industry forefront.



Three key components integrated as one innovative solution:

- 1 A hybrid satellite and wireless broadband network
- 2 A high-throughput solution designed for the cruise industry
- 3 A powerful cloud-computing platform

Maximizing Throughput and Performance with the MTN HTMS™ Solution

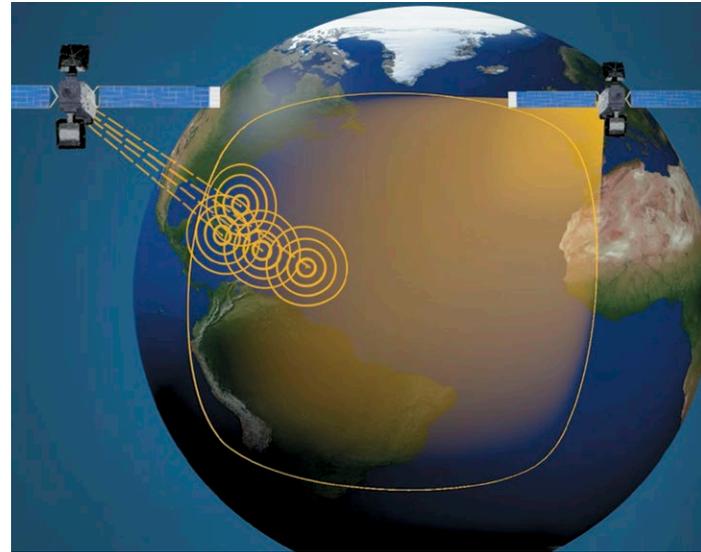
Transmitting VSAT bandwidth where vessels most need it—and not diluting it across vast, empty oceans—yields valuable cost and performance efficiencies, surpassing even most Ka-band solutions.

Just as narrow-beamed flashlights shine intense light on a specific object, MTN HTMS™ satellite beams will concentrate intense power and performance on the busiest cruising regions.

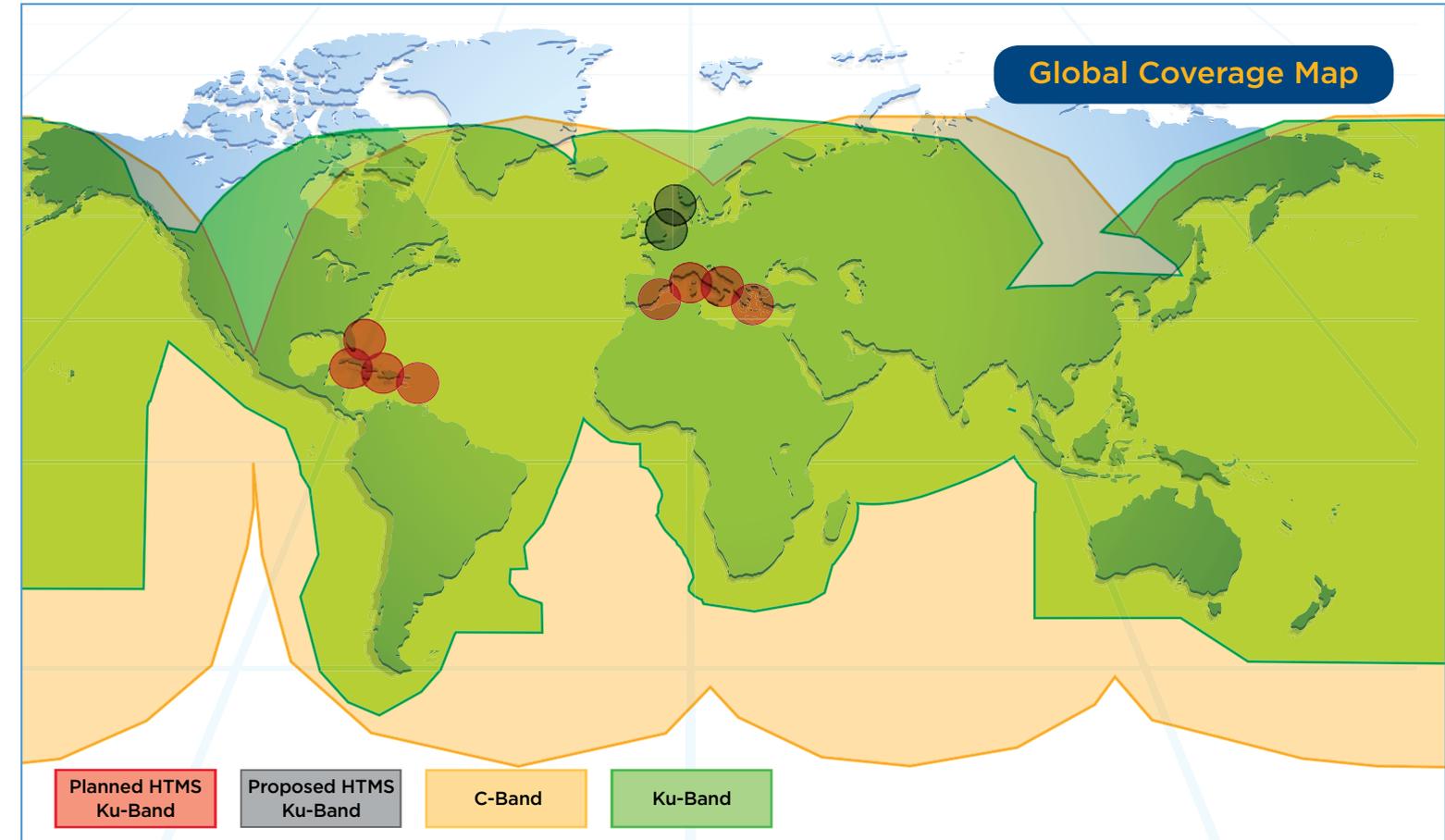
With higher throughput, onboard users will enjoy connection speeds and performance like at home, even in bad weather. And when outside MTN HTMS regions, they won't notice the switch to global Ku-band as they surf the Web interruption free.

Benefits

- **Enhanced user experience** – fast speeds without service disruptions, rivaling land-based networks
- **Seamless global coverage** – roam between MTN HTMS and conventional Ku beams with continuous connectivity
- **All-weather service** – with such concentrated power, MTN HTMS beams keep users connected even in the most adverse weather
- **Uses existing modems** – compatible with all TDMA and SCPC modems, including iDirect, Comtech and Newtec
- **Backwards compatible** – works with all Ku-band antennas, avoiding expensive upgrades
- **Technology agnostic** – flexibly design custom solutions—free of proprietary technology
- **Lower costs** – achieve higher throughput at lower costs per bit



Conventional satellites provide broad coverage but at the expense of performance. **MTN High Throughput Multi-Spot** beams, focused on busy cruising regions, will deliver higher performance at lower costs.



“MTN has been an important partner to Intelsat for more than two decades and is one of the true pioneers of the maritime VSAT sector.

The Intelsat Epic platform will be the perfect complement to MTN's intense focus on innovation and commitment to its customers and will enable MTN to differentiate its service features and achieve much higher throughput per vessel, changing the cruise ship experience by offering affordable, reliable connectivity.”

Steve Spengler, Intelsat EVP of Sales, Marketing and Strategy



We partnered with Intelsat, the world's largest satellite fleet operator, to bring the MTN HTMS solution to the Caribbean starting in 2015.

As demand grows, additional beams will be deployed in other regions, without requiring upgrades to shipboard equipment. This offers flexibility and scalability without the constraints of proprietary technology.

Seamless High-Speed Access In and Near Port

Hybrid VSAT/Wireless Broadband

MTN's hybrid VSAT/wireless broadband network solves the challenges of providing uninterrupted connectivity for ships entering and leaving ports around the world.

Obstructed ports, transmission-blocking terrain, and lack of wireless access points are easily overcome when VSAT and wireless broadband—including 3G, 4G, WiMAX, and LTE—work in tandem to provide an unparalleled online experience in port and at sea.



Automatic discovery of wireless broadband while still on VSAT.

Challenges Near Port

- Physical obstructions
- Single wireless connection at a time
- Losing VSAT
- Multiple link failures
- Limited redundancy without interruption
- End-user disruptions

This unique hybrid solution offers the following features and benefits:

FEATURE	BENEFIT
Worldwide Port Footprint	Maximum performance wherever ships go
ZeroImpact	Network transitions have zero effect on apps—users have continuous connectivity
Same technology used for in and near port	Cost savings, simplicity and reliability
Stabilized tracking platform with high-gain antenna	Connectivity at very long ranges, adaptable to a variety of access-point locations from port to port, reduces effects of noisy wireless interference
Support for standards-based wireless	Connectivity flexibility with a variety of equipment
Dual-deployed 2.4 and 5.8 GHz radios	Connectivity flexibility with a variety of equipment
Multiple access points per port as needed	Maximized throughput, connect time, and redundancy on port approach and departure
Bandwidth aggregation	Multiple network paths combined for increased throughput
VSAT reallocation	Increased bandwidth to ships still at sea

ZeroImpact Network Discovery and Bandwidth Aggregation

While most ships enjoy steady VSAT connectivity at sea, they face unique challenges when switching to a wireless broadband network approaching port.

During approach with MTN's solution, the system automatically discovers all available wireless access points (APs).

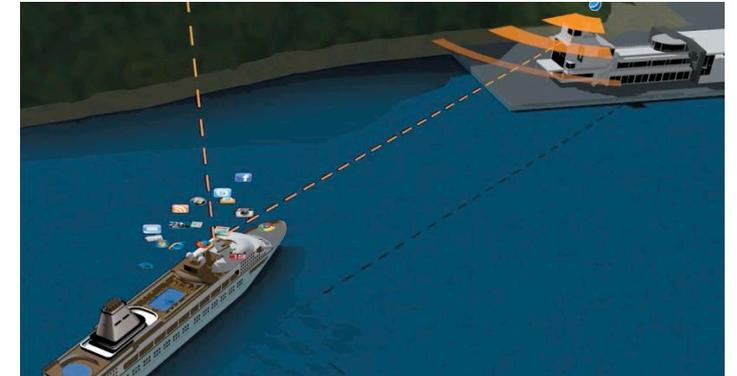
Preconfigured to quickly locate, lock and track wireless APs, onboard stabilized antennas with a 360° view connect to the ideal combination of these nodes—while still on VSAT—avoiding link failures and service disruptions.

Instead of switching from one path to another, MTN's solution aggregates the bandwidth into a single virtual tunnel. The system constantly monitors the health and throughput of all connections and routes traffic over the best combination.

In this way, traffic can be migrated from VSAT to a single broadband connection or to multiple—and then back to VSAT again—all with zero impact on applications and user activities. During the process, any freed-up VSAT bandwidth gets reallocated to other ships.

Key Features

- Automatic discovery of wireless access points
- Multiple stabilized tracking antennas
- Concurrent VSAT/wireless broadband
- VSAT bandwidth reallocation
- Increased throughput and redundancy
- Minimal, if any, end-user disruptions
- Worldwide cruise port coverage



Uninterrupted user activity while multiple connections are managed.



Continuously optimizing connections and aggregating bandwidth.

Optimizing Operations and Accelerating the Connected Experience

The MTN ShipCloud™ Platform

To meet skyrocketing connectivity demands, adding bandwidth is not the only answer. Consider increasing throughput and maximizing efficiencies with the MTN ShipCloud platform, an integral part of our powerful next-generation network.

Passengers and crew may forget they're in the middle of the ocean as they enjoy a connected experience that rivals a luxury resort on land. Your IT staff may wonder how managing a floating network and deploying new solutions could be so seamless and affordable.

The MTN ShipCloud platform is a powerful combination of hardware and software that replaces many other network components. It is the brains behind the MTN Nexus network and the platform for new application development and deployment.

It optimizes satellite and wireless broadband connections to most efficiently and consistently run all the apps users expect— everywhere, on any device—and apps they haven't even heard of yet. Give users a better connected experience, and do it efficiently with MTN.



- A hardware consolidator
- The brains behind the network
- An application development platform

- **Maximize bandwidth efficiencies** – with inherent data caching and compression, optimization of VSAT/wireless broadband connections, intelligent traffic routing, and more
- **Quickly create new apps** – on an open, standards-based developer platform with easy-to-access application programming interfaces (APIs)
- **Give users countless apps** – developed in-house, by third parties, or by MTN specifically for the cruise market

Why Go to the Cloud?

- **Enhanced user experience** – bandwidth-intensive apps run fast, with no network disruptions, even at lower connection speeds
- **Save space and money** – avoid specialty hardware, and consolidate rack space with a small footprint
- **Easy to start and scale** – expand product and service offerings without additional infrastructure investments

The Cloud 101

A Ship Not In the Cloud



Multiple apps run on multiple servers and proprietary, single-purpose devices on the ship. Local access only. New hardware and configuration settings needed for new apps and services.

A Ship In the Cloud



On the Ship

Apps hosted and updated remotely, accessed anywhere from multiple devices. Minimal ship hardware. No infrastructure upgrades required for new apps and services.

KEY FEATURES

- **Data Compression** – application data and larger files are “shrunk down” before transport
- **Bandwidth Aggregator** – optimizes multiple network connections and ensures seamless switchovers from VSAT to wireless broadband and back
- **Bandwidth Maximizer** – optimizes connections with wireless broadband networks and dynamically reallocates VSAT bandwidth to other vessels
- **Compute/Storage** – configurable services for settings such as load balancing, SQL database services, and DNS settings, on a standards-based open platform
- **Caching** – stores frequently accessed media, software updates, and content locally
- **Standards-Based and Open APIs** – enables easy development and deployment of new apps

BENEFITS

- Apps run fast
- Faster file sharing, especially pictures and videos, without loss in quality
- Conserves bandwidth
- Continuous connectivity
- Higher throughput and performance, optimizing operations
- Avoids frustration managing service disruptions and poor network performance
- Uninterrupted access to voice and data apps regardless of location
- Maximum performance, putting all available bandwidth to use
- More flexibility for IT to optimize network performance and service delivery
- Faster access to popular content and apps
- Ultra-efficient bandwidth usage
- Dramatically shorter time to market with apps developed in-house, by third parties, or MTN
- Enhanced user experience
- New opportunities to increase revenue

New Revenue Opportunities

Bringing new revenue opportunities, the MTN Nexus network makes it easy to deliver new consumer products. On the pages to follow, learn about ways to increase your offerings with new social media applications, an all-new Web portal, an affordable calling/texting solution, and expanding worldwide TV coverage.



CruiseBook

Facebook for Passengers and Crew

News Feeds



Status Updates



Social Networking at Sea

Passengers and crew expect to connect to their social networks whenever—and wherever—they want. Vacations, including cruises, are perfectly suited for sharing exciting adventures with friends and family on the social media grid.

Recognizing this, MTN is focused on developing new social media products specifically for the cruise market. Beyond enhancing the vacation experience, these unique products present significant opportunities for new revenue and incremental sales.

Photo Sharing



Messaging



The first in the series is CruiseBook, a version of Facebook optimized for minimal bandwidth consumption while still providing access to the most popular features. Status updates, check-ins and pictures are stored securely on the ship and posted at a later time.

Key Features

- Optimized for minimal bandwidth usage
- Customizable to your brand
- Compatible with iPhone, iPad, Android and more
- Easy photo sharing
- Instant word-of-mouth marketing
- Unique cruise-specific features

Easy Word-of-Mouth Marketing

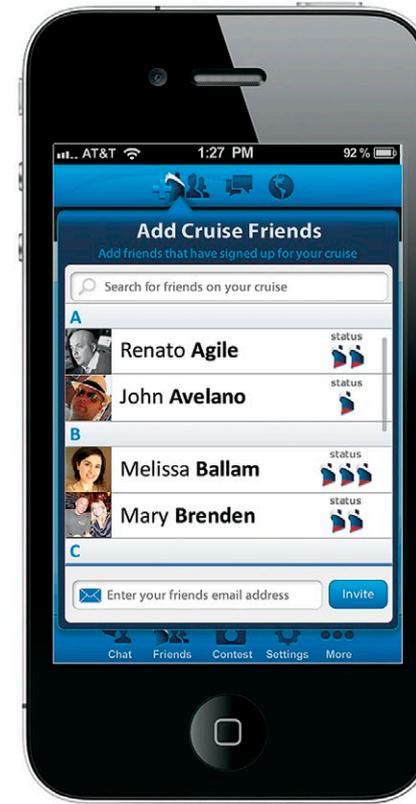
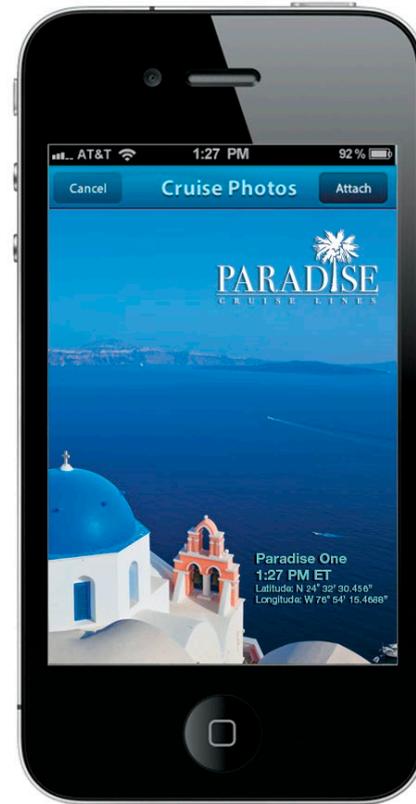
CruiseBook offers significant, word-of-mouth opportunities to instantly reach potential new customers everywhere in the world. The vacation experience can “go global” with every status update, check-in and photo post. Marketing doesn’t get much better—or cheaper—than passengers telling their friends, in real time, what a wonderful time they’re having.

Specific Cruise Branding

Your cruise line’s logo, ship name and position can be automatically stamped on photos posted by passengers as an added layer of fun and interest. And these photos can appear on the ship’s Facebook page.

CruiseFriends for New Connections

Another cruise-specific feature, CruiseFriends, gives passengers a way to easily connect with new friends they make onboard or during excursions. It also helps them keep in touch long after disembarking and to plan future trips together. Organized by each sailing, CruiseFriends buddies are distinct from Facebook friends, but can be converted later.

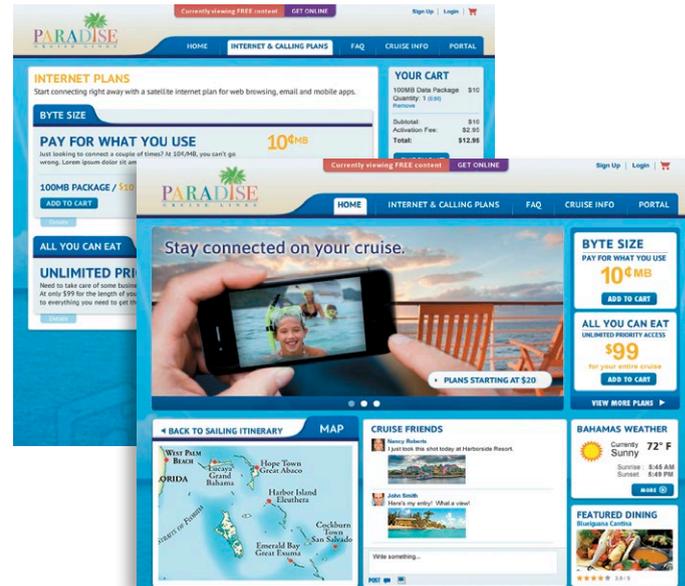


Internet Café – A Portal for Web Access and Beyond

MTN's end-to-end Internet Café solution for passengers and crew delivers all hardware, software, networking, WAN optimization and technical support services, as part of a fully managed solution.

It is evolving into an advanced, comprehensive portal with two distinct components:

- 1 A front end for passengers and crew to manage all their products in one convenient place, including Internet and calling plans
- 2 A back end for administrators to customize and manage the portal—intrinsically flexible, secure and comprehensive



Taking the next steps to mirror a land-based resort experience, our product innovation team is continually developing enhancements that include:

- A significantly faster and more inviting user interface
- Easy-to-use admin area for flexible customization, including localized and “widgetized” content
- Simple integration with social media, keeping content fresh
- Fast access from a range of mobile browsers
- More flexible options for pricing plans, including by data usage
- Seamless billing integration with off-the-shelf and custom property management systems
- Extensive options for self-serve customized billing and reporting
- A single storefront for all communications products
- Google Analytics integration
- Simplified log-in and log-out functionality

Calling and Texting on any Device



With modern cruise ships larger than ever, it can be difficult and expensive to communicate with traveling companions or fellow crew members—not to mention other vessels and family at home.

A cost-effective way to solve this problem is Connect at Sea™. With their own mobile device and phone number, users can call or text anyone who also has the app installed. Accessing the ship's Wi-Fi network, passengers and crew can easily and affordably communicate with their contacts—no matter where they are.

Calling plans are purchased through the vessel's PMS system, separate from an Internet plan, which is not required. With the app-to-app functionality, passengers and crew can avoid costly long-distance charges, and onboard personnel can use it to manage daily operations more effectively.

Key Features

- Uses own mobile device and phone number
- App-to-app texting and calling
- Available at Android and iPhone app stores
- Uses Wi-Fi network
- No additional Internet plan required
- Voicemail included
- Simple calling to/from anywhere
- Ship and shore functionality
- Optimized for voice QoS
- More features to come

Since its debut in 1999, more than 150 million users have logged on.



News and Entertainment on the High Seas

The maritime industry's first and only fully digital, licensed, multi-channel global TV service, MTN Worldwide TV broadcasts comprehensive programming to keep passengers and crew entertained and informed.

With a full range of major international networks, programming can also include networks from the cruise line or the ship itself for a comprehensive and customized channel lineup.

We continually enhance content with localized programming and additional entertainment channels. Partnering with content providers and enabling new technology, MTN Worldwide TV broadcasts in multiple languages and is expanding to include French, German, Italian, Portuguese and Spanish.



Video Streaming to Mobile Devices





FOR MORE INFORMATION:

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