



## WHITEPAPER

# Enhancing the Collaborative Capabilities of Microsoft SharePoint with Mobile Communications

### CONTENTS

- Purpose
- Introduction
- The Compelling Business Case for WAVE Communicator for Microsoft SharePoint
- Commercial Usage of Two-Way Radio Communications
- The Value of Microsoft SharePoint
- The Value of WAVE Communicator
- Summary

### Purpose

The purpose of this paper is to explain the unique communications challenges of the mobile workforce; the compelling value of Microsoft SharePoint as a collaboration tool, the powerful business case for the WAVE Communicator for Microsoft SharePoint (WCS) and the upcoming wave of innovation that will empower firms to greatly increase the utilization of scarce and valuable mobile assets.

### Introduction

In the last two decades, the advent of low cost personal computing and the internet has revolutionized the way that we do business, bringing incredible gains in productivity and time to market. Until very recently, the mobile workforce has not been well integrated into collaboration platforms such as Microsoft SharePoint or into mobile data and application networks. However, the advent of high bandwidth mobile data networks and powerful mobile devices is creating an unprecedented opportunity to integrate the mobile workforce into the world of data and application sharing and unified communications. The WAVE Communicator for Microsoft SharePoint from Twisted Pair Solutions is binding together these axes of innovation into an extremely powerful tool for mobile operations. WCS allows instantaneous, real-time push-to-talk (PTT) communications between enterprise workers who are using SharePoint to manage information and resources and mobile workers.

The purpose of this paper is to examine the unique communications challenges of the mobile workforce the compelling value of Microsoft SharePoint as a collaboration tool, the powerful business case for WCS as a means to communicate with mobile workers, and the upcoming wave of innovation that will empower firms to greatly increase the utilization of scarce and valuable mobile assets.

### The Compelling Business Case for WAVE Communicator for Microsoft SharePoint

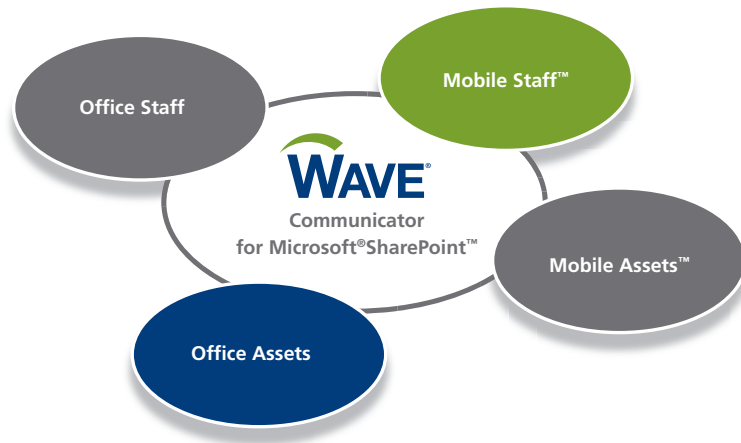
The deployment of WAVE Communicator for Microsoft SharePoint presents a number of compelling business opportunities to organizations, some of which are obvious and some are not. Mobile teams and their supervisors use voice communications for minute-by-minute coordination and collaboration. SharePoint provides access to data that will not only facilitate that coordination, but will provide the mobile teams with direct access to task-critical information such as project plans, schematics, task lists and location data. WCS is an ideal communication solution where organizations use SharePoint to manage projects, workflows and resources and where they can leverage the power of instantaneous push-to-talk communications with field team members.

### The Interface between Office-based and Mobile Scenarios

The 'mobile workforce' is more than just sales and delivery people. Anyone who does not work at a fixed workstation, such as a desk, can be considered mobile. Mobile workers often operate expensive capital assets. In every organization that has mobile staff and mobile assets; the coordination of those resources is facilitated by staff and assets that are office-based. The distinction between office-based and mobile staff and assets can be described as follows:

- **Office-based staff**—staff involved in the coordination, management and direction of mobile staff and assets, or staff that manages and operates office-based assets.
- **Office-based assets**—business systems that manage business transactions and processes or provide data storage and retrieval, such as Microsoft SharePoint, databases, ERP systems, etc.
- **Mobile staff**—staff whose main occupation is essentially mobile in nature and whose primary means of communication is a radio or other PTT device. These staff increasingly will rely on mobile computing devices to gain access to data that is needed to complete their task.
- **Mobile assets**—any form of capital equipment used by mobile staff, including transportation (air/sea/land), machinery (e.g. mining equipment), installation and repair rigs and emergency response vehicles.

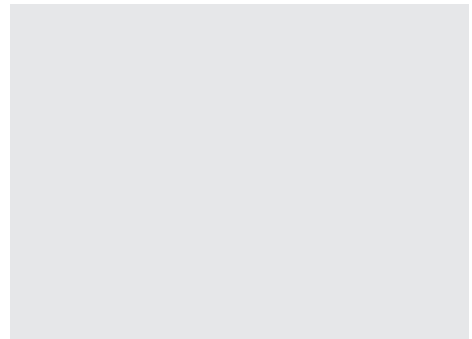
For organizations who are using or plan to use Microsoft SharePoint as the platform to create and manage the flow of information relevant to coordinating these assets, the communications interface for these staff and assets is WAVE Communicator for Microsoft SharePoint:



### Improving Organizational Efficiency and Reducing Cost

The deployment of WCS creates widespread efficiencies for organizations by providing broad-based access to individuals, teams and groups coupled with immediate, secure communications regardless of the devices they are using, their location or the network to which they are connected. By streamlining communications between non-mobile and mobile staff, organizations can:

- Provide always-on, instantaneous, real-time PTT communications for groups and teams in every-day and situational scenarios
- Eliminate communications bottlenecks and opportunities for misunderstanding emanating from the relaying of messages
- Improve response time and customer satisfaction by connecting customer-facing staff with mobile workers



*Mobile workers increasingly depend on more than just data to complete their tasks.*

- Increase the operational efficiency and economic utility of expensive and scarce mobile assets
- Reduce communications costs by eliminating toll-based network usage

### **A New Wave of Business Process Innovation**

The recent emergence of a new class of mobile devices, specifically smartphones and 'tablets,' is enabling a new wave of innovation in mobile applications and use cases. Mobile workers now have access to:

- Low cost mobile computing power
- High speed 4G data networks such as LTE
- Unified communications modalities, i.e. presence, status, instant messaging, voice, video, data collaboration, conferencing
- Massive cloud-based data sets (e.g. satellite imagery, transactional databases, etc.)
- Sources of unstructured data (e.g. documents on the Internet, SharePoint sites, etc.) accessible by search engines
- GPS-based location data
- High resolution displays
- 'Peripheral' devices such as RFID readers, HD cameras, etc.
- The 'app store' innovation model

These innovations and technologies will rapidly revolutionize the way that we conduct mobile operations in ways that we cannot yet imagine. For example, smartphone integration with SharePoint and GPS-enabled two-way radios provides an immense opportunity to optimize routing and dispatch of high-value mobile resources. The rich APIs created by Microsoft and Twisted Pair provide customers the ability to create custom applications that are enabling the integration of location data from mobile devices with rich on-line mapping interfaces and real-time traffic data<sup>1</sup>. Additional data needs of mobile staff include:

- Schematic diagrams Business data transactions, e.g. new orders
- Transport manifests & order fulfillment 'picking lists'
- Work process logs & task lists
- Training documentation and videos

Access to this data will require an interface to Line of Business systems such as:

- ERP and other transactional systems
- Order, inventory and supply chain management systems
- CAD/CAM systems
- Unstructured data repositories (e.g. via SharePoint):
  - Photographs
  - Satellite imagery
  - Maps (both street and topographical maps, especially with business information overlays)
  - Live video feeds

*'Smartphone integration with SharePoint and GPS-enabled two-way radios provides an immense opportunity to optimize routing and dispatch of high-value mobile resources.'*

<sup>1</sup> E.g. Bing maps, Google maps, etc.

SharePoint is an ideal repository for unstructured data, and provides the ability to enhance the search and retrieval of such data through the use of tagging and indexing.

Custom integration or 3rd party solutions can be deployed to provide the mobile workforce with the data and applications that will enable the next wave of business process innovation. If your company has a office-based information asset that could empower mobile workers, the advent of 4G/LTE networks and mobile computing devices can now deliver that information to wherever it is needed. In particular, the creation of 4G-capable tablet devices creates the opportunity to further leverage the power of the app store. Although currently focused on consumer applications, thousands of Independent Software Vendors will soon be mobilized to provide a rich array of compelling applications for mobile business.

### **Key Adoption Scenarios and Market Segments**

The WCS solution is ideal for any scenario where the following attributes are critical to the conduct of mobile operations and business process improvement:

- The need for verbal communication and coordination
- Geographic location
- Information intensity
- Rapidly updating (i.e. intra-day) transactions
- Dynamic operations environments

Although these scenarios are ubiquitous, the market segments where business process improvement opportunities abound are:

- Primary market segment:
  - Raw materials (e.g. mining, forestry and agriculture)
  - Oil & Gas
- Secondary market segment:
  - Engineering, Manufacturing and Plant Maintenance
  - Construction
  - Processing, Refining, Smelting
- Tertiary market segment:
  - Transportation
  - Utilities
  - Logistics
  - Retail
  - Hospitality & Entertainment
- Public sector and non-profit segment:
  - Military & National Security
  - Emergency Response & Law Enforcement
  - Public service, field-based charities & NGOs

*'Custom integration or 3rd party solutions can be deployed to provide the mobile workforce with the data and applications that will enable the next wave of business process innovation..'*

## Commercial Usage of Two-Way Radio Communications

In the 21st century, when most people think of mobile communications they think of the ubiquitous cell phone. However, the use of other forms of mobile communications in specific scenarios is so well established that it often goes unnoticed. Today there are millions of 2-way radios and PTT devices in use worldwide providing essential communications to teams of mobile workers. (A full explanation of the usage of radio communications is outside the scope of this paper, the citation below will provide the reader a good primer on radio communications<sup>2</sup>.) In order to appreciate the benefits of WCS, it is useful to understand the situations where the use of radio is preferred over cellular phones.

The main categories of the usage of radio by government and commercial entities are:

- Emergency services, e.g. Police, Fire, Ambulance, Rescue;
- Physical security, national security and military operations;
- Field mobile technicians, e.g. installation, repair and utility workers;
- Commercial transportation, e.g. airlines, airports, trucking, taxis, trains, buses and seaports;
- Event management and hospitality;
- Logistics, warehousing and retail, i.e. where staff operate over a wide physical area;
- Construction and maintenance.

For the most part, radio has not been replaced by cellular in these use cases for very good and practical reasons:

1. **Immediacy**—mainstream radio users (e.g. firefighters) are usually fully engaged in the task at hand, so the notion of pausing to look up a number and dial is out of the question.
2. **Availability**—the types of scenario where radio excels means that radio users have a low tolerance for dropped calls or ‘no signal’ – common experiences for the cellular user.
3. **Security**—the use of encryption to maintain privacy on public airwaves.
4. **Broadcast communications**—radio usage is most beneficial when everyone in a certain group or team might need to hear all messages (e.g. ‘Customer in aisle 5 needs assistance.’)

In recent years, mobile carriers have tried to supplant traditional two-way radios with their own push-to-talk (PTT) services, with moderate success at best. Clearly, PTT cellular networks such as the Sprint (formerly Nextel) Direct Connect service have replaced some traditional radio usage. The ‘half-duplex’<sup>3</sup> and broadcast modes of operation of PTT systems are sufficiently different from general cellular and Public Switched Telephone Networks (PSTN) that they can be considered to be a type of radio system implemented on a cellular network. Like conventional cellular networks, most PTT services have limitations in that they operate within a relatively short range of a fixed communications tower. These towers have a finite capacity, rendering them unusable in some situations:

*‘In recent years, mobile carriers have tried to supplant traditional two-way radios with their own push-to-talk (PTT) services, with moderate success at best.’*

<sup>2</sup> For a greater understanding of two way radio, please see: [http://en.wikipedia.org/wiki/Two-way\\_radio](http://en.wikipedia.org/wiki/Two-way_radio)

<sup>3</sup> In ‘full-duplex’ mode, both parties can speak at once, as is usually the case in telephony. In ‘half-duplex’ mode, only one person can speak at a time—this is the default mode of operation in radio and PTT systems.

- Operations in locations that may be outside the coverage of the supporting cellular networks, e.g. forestry operations.
- Where the range of communications is great, possibly extending beyond the coverage of a single PTT network provider, and the communicators may be moving at considerable speed, e.g. aircraft communications, marine communications, military operations.
- In certain transient high density usage situations where cellular networks may be overwhelmed, e.g. sports stadiums, major emergencies and other significant events where many people in a relatively small area are trying to communicate all at once.

The unique attributes and requirements of these types of scenarios make two-way radio communications indispensable. In addition, the requirement for radio users to communicate with users on other networks is indisputable—this is where systems such as the WAVE Communicator for Microsoft SharePoint from Twisted Pair bring immense value to the communications infrastructure.

### The Value of Microsoft SharePoint

Microsoft SharePoint<sup>4</sup> is an information sharing and collaboration platform that enables the management and distribution of:

- Web sites
- Communities
- Content
- Search
- Insights
- Composites (tools for do it yourself business solutions)

SharePoint enables the rapid and cost effective creation of business solutions to support the dissemination, discovery and retrieval of corporate knowledge. The search capabilities built into SharePoint are critical to the discovery of information. In the internet age, this is aligned with the way that information workers have grown accustomed to finding information.

While SharePoint is a great tool for managing teams of non-mobile staff, it is even more powerful as an information sharing tool for the mobile workforce. Access to SharePoint is via a browser, so this obviates the need for application specific clients and is readily accessible from a wide range of mobile platforms, including Apple's iOS and Google's Android. Furthermore, mobile teams are, by definition, task oriented and are often coordinated by office-based staff. SharePoint is a great platform for the consolidation of a wide range of task-oriented data from relevant Line-of-Business applications (e.g. ERP, supply chain management, etc.) that would be used to coordinate the activities of mobile teams.

When integrated with directory services such as Microsoft Active Directory, the search capabilities are extended to the people in the enterprise. A social media extension enables the enrichment of directory data to include information about each person's role, responsibilities, skills, current assignment and working documents.

*'While SharePoint is a great tool for managing teams of non-mobile staff, it is even more powerful as an information sharing tool for the mobile workforce.'*

<sup>4</sup> For more information on Microsoft SharePoint, go to: <http://sharepoint.microsoft.com/en-us/Pages/default.aspx>

## Benefits and Business Process Enhancements

*SharePoint enables:*

- Richer collaboration and conferencing
- Improved access to information—empowerment
- Increased productivity
- Increased employee connectedness
- Improved information sharing and retrieval

*The ROI of SharePoint is in providing:*

- Business and operational insights
- Improved decision making
- Increased organizational agility

### The Value of WAVE Communicator

Having evaluated the requirements of mobile teams for radio/mobile device communications and the collaboration features of Microsoft SharePoint, the compelling value of a voice communications system integrated with a data collaboration platform starts to emerge.

While a full description of WAVE is outside the scope of this paper<sup>5</sup>, it is useful to understand the high level features and capabilities of the application to fully appreciate the scenarios discussed in this paper.

WAVE is a technology that connects traditional non-IP devices such as two-way radio and PTT networks with the IP network, enabling the interoperation of disparate radio networks and clients in IP networks. This provides economies of scale for the enterprise by consolidating these networks under the control of the IT department, providing flexibility, extensibility, cost savings and better oversight of the overall communications infrastructure.

By providing a radio channel interface and floor control for SharePoint, WCS combines the richness of SharePoint-based information retrieval and collaboration with the immediacy and command and control attributes of traditional radio and PTT systems. WCS fully integrates mobile workers into the collaboration environment, providing an information-driven context to mobile communications. In addition, WAVE offers a full suite of end-user applications beyond WCS. Of particular interest is the WAVE Mobile Communicator, an application for mobile devices that enables a smartphone or tablet to seamlessly and securely communicate with radio users and office-based members of their team. This is an invaluable feature for mobile workers who may need to communicate on several radio networks and/or consolidate multiple devices into one multi-purpose device. Combining the information retrieval and display attributes of a mobile computing device with audio communications will greatly empower mobile teams and their office-based managers and coordinators.

WAVE is a scalable and cost effective solution that enables staff to use familiar systems, thereby eliminating retraining, re-equipment costs and downtime. The use of the WAVE platform can improve communications between radio networks of different types by bridging those networks as well as providing mobile staff with a multi-purpose smartphone device that can access multiple radio networks and the SharePoint network.

*'The use of the WAVE platform can improve communications between radio networks of different types by bridging those networks as well as providing mobile staff with a multi-purpose smartphone device that can access multiple radio networks and the SharePoint network.'*

<sup>5</sup> See: <http://www.twistpair.com/>

By deploying WCS, SharePoint users gain access to a number of valuable capabilities, for example:

- Access to traditionally unreachable and far-flung devices that are part of proprietary radio systems, paging systems and other non-IP networks
- A secure, instant access connection between smartphones, Microsoft SharePoint users and users of one or more radio networks, regardless of where in the world mobile workers are located
- The ability to consolidate all communications infrastructure under IT control, reducing convoluted network operations
- Integration of the users physical location (provided by GPS enabled radios or smartphones) into the communications mix, including mapping of users' geo-location within the WAVE Communicator for Microsoft SharePoint application.

### Summary

In key operational scenarios, the provision of communications to operational staff via mobile networks is of immense value. For mobile workers, the richness of the information retrieval and display of Microsoft SharePoint is providing new value to the mobile business processes of a rapidly growing number of commercial and government entities. Mainstream adopters of SharePoint include Global 500 organizations that conduct multi-national operations around the clock in a diverse range of challenging environments and who already depend significantly on radio and PTT networks. Integrating the power of Microsoft SharePoint with the mobile communications provided by WAVE Communicator and information sharing capabilities of the latest mobile devices and networks portends a new era of business innovation.

### Let's Talk

WAVE applications are also available for Microsoft Lync and for BlackBerry, Android, iPhone and Windows Mobile smartphones and tablets.

twistpair.com  
info@twistpair.com  
+1 (206) 442-2101

### ABOUT TWISTED PAIR

Twisted Pair is the recognized leader in critical communications. Our WAVE software empowers your mobile workforce with critical communication applications for secure, real-time collaboration anywhere on any device. Built on a battle-tested communications interoperability platform, WAVE delivers voice, video, location, presence and other forms of data deployed as an enterprise product or cloud-based service throughout commercial, public sector and defense organizations. WAVE has been proven in thousands of the most complex deployments around the world to help integrate and control a truly unified communications system so that office-based and mobile workers can simply talk, make decisions and act.

**CORPORATE HEADQUARTERS**  
3131 Elliott Avenue  
Suite 200  
Seattle, WA 98121 USA  
(T) +1.206.442.2101  
(F) +1.206.812.0737  
(E) sales@twistpair.com

**EMEA**  
Davidson House  
Forbury Square  
Reading, RG1 3EU  
(T) +44.118.900.1110  
(F) +44.118.900.1111  
(E) sales.emea@twistpair.com

**APAC**  
2 St Peters St  
Glenelg East, Adelaide  
South Australia, 5045  
(T) +61.(08).8376.5905  
(F) +61.(08).8125.6570  
(E) sales.apac@twistpair.com

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