DIGITAL HEALTH

phn MURRAY
An Australian Government Initiative

THE ROLE SATELLITE INTERNET PLAYS IN BUSINESS CONTINUITY AND DISASTER RECOVERY

Q&A guide - investing in better preparedness

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Disclaimer: This toolkit aims to increase digital readiness and knowledge of the tools that are available to be used in everyday practice. It does not replace advice or tools that are already available to assist practices to map out and plan their emergency preparedness activities (see the last page for more details). While care has been taken in preparing this document, it is a guide, that is uncontrolled when printed – for the most up-to-date version, visit murrayphn.org.au

Does your practice already have a business continuity and disaster recovery plan in place?

If yes, is your plan robust enough for your needs and has it been tested?

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Investing in better preparedness

This Q&A style guide offers a starting point to explore the use of satellite technology in your business, including considering how satellite technology could provide support during emergencies while being built into your disaster management and business continuity plans. If you have any specific questions or need more detailed information, please contact your IT provider or satellite companies in Australia.

When disaster strikes, emergency communicators and health providers need to get connected and stay connected, especially in remote areas. Satellite communication, in the form of satellite phones and internet services, can provide basic but reliable communication channels when conventional ground-based mobile communication systems fail.

During the 2019-2020 bushfire season in Victoria, several communication issues were identified including:

- **Telecommunications infrastructure:** More than 1400 telecommunications facilities, including mobile phone base stations and exchanges were impacted by the fires. This resulted in congested networks and communications failures. Most outages were due to power failures rather than direct fire damage.
- **Restoration delays:** Restoration of communication services was often delayed due to site access restrictions, such as fallen trees and unsafe conditions. On average, it took three and a half days to restore services in affected areas.

During these times, business continuity is a priority. It is highly recommended that businesses have a tested recovery plan to handle unpredictable events like hardware failures or natural disasters, such as fires and floods. In general, these incidents aren't intentional and do not actively target data.

The perfect system seamlessly integrates with your overall disaster recovery strategy, ensuring swift retrieval of critical data to minimise downtime and potential revenue loss. In today's workplace a remote backup feature is essential, enabling data access and recovery from any location, which is especially important for remote or hybrid work models.

You can find more information and resources regarding disaster recovery and management on the Murray PHN website, including the following guides:

- **Emergency and Natural Disaster Digital Health Toolkit**
  This toolkit suggests options for general practices and businesses to allow continuity of care by staying connected with staff, stakeholders, and patients during an emergency. Continuity of care can be quickly mobilised using digital health resources for virtual health clinics and remote medical consultations, including My Health Record, eScripts and electronic requesting.
- **Emergency Response Planning Tool (ERPT**)
  A cloud-based application tool for general practices, which helps them to create an individually tailored emergency response plan.

Acronyms

Mbps	Megabits per second refers to download and upload speeds. The higher the number, the higher the speed.
TB	Terabyte is the most common unit used to measure hard drive size. A terabyte is a lot of space.
VPN	A virtual private network can hide your IP address to protect your online identity.
IP	An internet protocol address is a unique identifying number assigned to every device that is connected to the internet.

Satellite systems Q&A

Unlike fixed-line broadband services, which rely on a physical connection, satellite internet beams data from homes and business premises up into space. A satellite then receives the communication and relays it back to Earth to its intended recipient.

How many satellite systems are available in Australia?

In Australia, there are two primary providers:

1. **NBN Sky Muster:** Operated by NBN Co, this system uses two satellites (Sky Muster I and II) to provide internet services to rural and remote areas. It offers various plans with data caps.
2. **Starlink**: Provided by SpaceX, Starlink offers high-speed, unlimited internet access across Australia. It uses a constellation of Low Earth Orbit (LEO) satellites.

There are also several smaller providers who may offer competitive plans including Activ8me, IPSTAR and SkyMesh.

How fast are satellite internet speeds?

Because a satellite signal must travel such vast distances, the speed of downloads and uploads are usually slower than what you would find with a wired connection.

General speed ranges for popular satellite internet providers include:

- **NBN Sky Muster:** Speeds up to 100Mbps.
- **Starlink:** Speeds up to 192Mbps.

Satellite internet speeds can vary depending on the provider and the specific plan chosen, as well as weather conditions, satellite congestion, and your location.

Can you use satellite systems during floods and in bad weather?

Satellite systems are designed with rugged weather conditions in mind.

- **Cloudy weather:** A typical cloudy day does not affect satellite systems. However, storm clouds could affect the signals, as they tend to create rain which may cause signal interruptions. Storm clouds are also moister and denser, which can play a big part in the degradation of a satellite signal.
- **Rain:** Light rain generally doesn't cause issues, but a heavy downpour can affect the signal quality. Heavy rain is associated with thick, dense clouds. The denser the clouds, the greater the likelihood that radio signals to and from satellites will be blocked.
- **Winds:** A well secured and mounted satellite dish that doesn't sway or move won't be affected by strong winds. Dishes usually come with a phased array antenna that can track satellites flying overhead without the need to move physically. This also helps prevent signal interruptions.
- **Snow:** Light snowfall should not affect satellite signals, but heavy snow can affect performance due to moisture buildup. Some dishes come with a heating function that melts the snow automatically, but if snow builds up on top of the dish, it may need to be cleaned out manually to avoid signal issues.
- **Sleet and ice:** Heavy icing or a sleet event will require manual dish cleaning.
- **Fog:** Dense fog could cause signal loss or interruptions due to high moisture levels.

Do I need electricity for the system?

No matter if you're stationary or on the move, electricity must run to both the mobile satellites and satellite phones once batteries run down. If users are ‘off grid’ or on the road, this may mean a generator, an inverter for your vehicle, or moving to another location where power is available even if internet remains down.

The best ways to keep your internet on during a power outage include:

- Using a mobile hotspot or cellular data connection
- Sign up for a backup internet or satellite service
- Investing in a generator or other power sources.

What is an uninterruptible power supply (ups)?

If your business uses computers to store personal health information, it's essential to have a backup system in place to handle computer crashes or power failure.

An uninterruptible power supply (UPS), sometimes called a battery backup, provides a temporary power source during power outages. It can also protect sensitive electronic equipment like computers, servers and medical devices from damage caused by sudden power loss, voltage fluctuations and surges. A UPS ensures data integrity and prevents disruptions to critical operations by allowing for a safe shutdown or continued operation for a limited time during power failures. Contact your IT specialist for further information.

What if my power is back on but my internet is still out?

Like most internet issues, the problem likely lies at the source of your connection - the modem and router. It's possible that the power outage caused your equipment to malfunction and a simple router restart should do the trick. In the case of electrical storms, a power surge may have damaged your equipment, rendering it inoperable. To prevent this, consider plugging your router into a surge protector.

If your modem and router seem to be working fine, but you still can't get online, it's possible that your internet provider is experiencing an outage. Your power may be back on, but your providers power may still be out and affecting their service.

Connectivity of course, is necessary for telehealth operations, and satellite internet can provide network connection during restoration efforts in disaster areas.

If I need to relocate my business, what else can I consider ensuring ongoing communication, connectivity and business continuity?

It is crucial to ensure uninterrupted operations can be maintained in the face of unexpected disasters by having a robust backup and recovery plan in place. This allows for speedy restoration of data and systems, while minimising downtime and maintaining business continuity.

Satellite options

Compact, portable kits that can fit in a backpack are available with some plans, often including a built-in Wi-Fi router that can provide download speeds of more than 100Mbps. To explore further, contact satellite services directly as this option is not available with all providers.

Backup servers

Backup servers provide an accessible copy of the data stored on your primary server, allowing it to be recovered or accessed if the original data is lost, corrupted or unattainable.

One such example is the Datto device. Datto servers can be valuable for medical clinics during disasters where power and internet are affected, ensuring data protection and quick recovery.

You can recreate or virtualise your servers or workstations from your Datto device through the device's web portal and connect to the servers or workstations with VPN and remote desktop connections. This means that if physical servers are damaged, or you need to relocate, the business can continue operating without being in situ with your primary servers and minimal disruption. The Datto device continues backups, even while machines are virtualised, and once you are back to normal at your usual location, you can seamlessly transition back to physical machines.

In summary, Datto servers can enhance:

1. **Data backup and recovery:** by providing continuous data backup - ensuring that all patient records and critical information are securely stored. In the event of a disaster, clinics can quickly restore their data (including from another site). This minimises downtime and ensures continuity of care.
2. **1-click disaster recovery:** this feature allows clinics and businesses to rapidly create a virtual environment in the cloud.
3. **Business continuity:** is supported by allowing clinics to maintain access to essential applications and systems. This is crucial for managing patient care, scheduling and communication during emergencies.
4. **Regular testing:** disaster recovery tests can be conducted to ensure that the Datto server backup and recovery plans are effective. This proactive approach helps identify potential issues before a real disaster occurs.
5. **Security:** Datto type servers offer robust security features to protect sensitive medical data from cyber threats, which can be particularly heightened during disaster situations.

These capabilities can help medical clinics and businesses stay operational and continue delivering essential services, even when natural disasters like fires or floods force staff to relocate.

For more information contact your IT consultant to discuss.

What is a cloud-based server?

Cloud servers are virtual (not physical) servers running in a cloud computing environment that can be accessed on demand by unlimited users. Cloud servers work just like physical servers, and they perform similar functions like storing data and running applications.

How much do satellite systems cost?

The cost of satellite internet systems in Australia can vary depending on the provider and the specific plan you choose. Costs reflect ongoing monthly fees and initial setup costs, or if there are promotions in your areas.

How to choose a satellite provider?

When selecting between Australia's primary satellite internet providers it's essential to evaluate the features that best meet your needs. NBN Sky Muster and Starlink each have their own pros and cons, which can significantly impact your internet experience.

Data limits and speeds

Refer to each internet providers for terms and conditions, and additional information.

Generally, if you are just browsing or checking emails any plan will work. Other activities, such as 4K streaming, may require higher plans that are unlimited rather than capped. Importantly, explore real-world peak-hour speeds versus advertised rates.

Knowing your business's data requirements helps you strike the right balance between cost and performance. Do you require a capped or unlimited data plan? By understanding what your business needs, you can select a plan that offers the best value without compromising on essential speed and data allowances.

For instance, a medical practice using patient management systems requires a reliable and high-speed internet, including;

- **Download speed:** Aim for at least 100Mbps to ensure smooth video conferencing, accessing online medical records and other data-intensive tasks.
- **Upload speed:** At least 10Mbps to support video calls and uploading large files.
- **Data limits:** Consider an unlimited plan or one with high data caps (e.g. 1TB or more) to accommodate extensive data usage.

Costs on installation, equipment, and monthly fees

Pricing varies widely. To determine the best value, consider:

- the monthly fees
- any upfront costs including installation
- the ability to cancel or pause the subscription at any time without incurring a penalty
- choosing a longer contract may attract a cheaper monthly rate.

Consider equipment costs and be aware of additional charges, such as optional IP addresses or professional setup, as these can affect your overall expenses.

Location and availability

Ensure you choose a satellite provider that offers a reliable service in your specific location, particularly if you may be mobile or anticipate your business address may change. Determine if the provider offers nationwide or limited coverage (e.g. rural/remote areas only) and if portable satellite services are available.

Are there any other recommendations I should be considering?

- Satellites can provide business continuity during disasters when land-based internet infrastructure is out of action or over capacity.
- Satellite internet is critical to facilitating first response efforts by keeping airports, shelter locations, healthcare facilities and utility operations up and running.
- A tested and robust disaster recovery plan to handle unpredictable events, incorporating data backup and recovery, is essential for protecting critical data and minimising the impact of data loss.

Best ways to keep your internet on during a power outage

- Use a mobile hotspot or cellular data connection.
- Sign up for a backup internet service.
- Invest in a generator or other power sources.

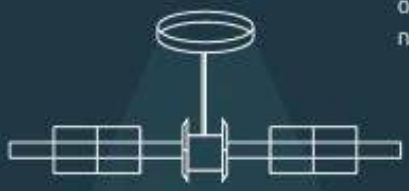
Things to think about regarding satellite plans for your business

- **Location**: Make sure the provider covers your area. If you're wanting to use your dish for internet connectivity on the road you need to select the right satellite package.
- **Budget:** Factor in both the upfront costs and monthly fees.
- **Usage habits:** Pick a plan that matches your business requirements and how you will use the internet.
- **Data requirements:** Decide if unlimited data is necessary or if you can work within fair usage limits, which may reduce speeds after hitting certain thresholds.
- **Connection times:** Review installation and connection times (a new connection may take some time to activate).

If you're interested in learning more, need advice or are looking to integrate new technology, contact Murray PHN's Digital Health team: digitalhealth@murrayphn.org.au or visit: murrayphn.org.au/digitalhealth/

Why does satellite connectivity matter?

When natural disaster or human conflict occurs, cellular telecommunication and terrestrial connectivity are often disrupted — sometimes for months on end. Satellite-based connectivity can be quickly deployed to assist with critical rapid-response, ongoing recovery operations, and to help restore necessary infrastructure. This includes:



Airports

Airports are important hubs for both responders and relief supplies — and connectivity is vital to enabling logistics and transportation.

Emergency response/ healthcare centers

Connectivity and communication are critical when setting up and running operational support centers that provide vital and timely resources.

Shelter locations

The internet is essential to helping the displaced find shelter locations and other important services.

Point of sales operations

Many point-of-sale operations require connectivity to operate — important to both restoring business and enabling citizens to purchase food, gas, and other essentials.

Utility operations/critical infrastructure

Similar to airports, utilities and other critical infrastructure systems need connectivity to restore service — this includes everything from water and electric utilities to data centers responsible for providing IDs and other documentation.

Cell phone communication backhaul

Satellite connectivity can help speed up the restoration of cell service by providing a crucial connection to core networking services.

First-response emergency management & communications

Connectivity and communication are key to coordinating response efforts, safeguarding personnel, and accessing/disseminating information – including translation apps used by first responders to communicate with the local population.

Telehealth

Online telehealth resources can help healthcare providers communicate with those impacted to provide diagnosis and treatments.

Access to real-time news and data

When cable and the internet are down, people are cut off from real-time news and updates; satellite can help the impacted keep up with what's happening around them — and the displaced keep up with what's happening back home.

Staying connected with family and friends

Rapid restoration of communications enables those impacted to let friends and family know they're safe – and to stay in touch.