

PUBLIC WARNING PLATFORM OVERVIEW

A versatile, geo-redundant, high available emergency warning platform that lets Governments and Mobile Cellular Operators handle multi-hazard alerting, quickly and easily, across multiple channels.

In an emergency, time is of the essence. The importance of effective communication to prevent loss of life, damage to property and critical infrastructure during an emergency can't be overstated. It's essential to get the right message, to the right people, at the right time! Every time, in any situation.

INTRODUCTION

It's an unfortunate sign of the times that dealing with emergencies is inevitable. But studies have shown that effective early warning alerts make a difference. It's been proven that fast, targeted, emergency warning messages substantially reduce deaths, injuries and damage.

To act swiftly, crisis management teams need a consolidated view of imminent threats to ensure that appropriate precautions are taken, and correct information is disseminated to all citizens in the affected area. Providing templates, automated workflows and role-based permissions speed up the process while minimizing errors along the way.

With new public warning mandates from, for instance, EEECC Article 110 from the European Union (EU) or Wireless Emergency Alerts (WEA) from the Federal Communications Commission (FCC), there is an added dimension to consider when selecting your public warning solution. Not only should the solution offer intuitive, practical functionality but it's vital that it also meets the criteria of the emergency warning requirements.

one2many's Public Warning Platform (PWP) is a comprehensive multi-hazard, multi-

channel emergency alerting solution that allows you to enforce jurisdiction while applying approval and notification rules. PWP is a versatile platform that supports different use cases, giving you flexibility and increasing the return on investment. The PWP can also be referred to as a Cell Broadcast Entity (CBE), as is the case in 3GPP standardization terminology.

As a national alert gateway, PWP acts as a centralized hub enabling government crisis management teams to alert and inform citizens, from any source and disseminate alerts to any type of device or technology. For situations where a Civil Defense organization requires messages to be submitted according to the Common Alerting Protocol (CAP), PWP provides gateway capabilities to connect the Civil Defense Alert Management Systems to the Mobile Cellular Provider's network. Mobile Cellular Providers can also use PWP to test detailed features of Cell Broadcast such as repetition rate, device-based geo-fencing features or individual Cell-IDs. PWP meets all the emergency alerting technology requirements and is available on-premise or as a cloud-based managed service.





KEY BENEFITS

■ Aggregated multi-source data for a contextual, holistic view

With one2many's PWP, your team has a consolidated view of the imminent threat, which allows them to share corroborated and confirmed information at the earliest opportunity. PWP provides functionality to gather relevant alert content from dedicated mobile apps, social media, local emergency operation centers, warning authorities as well as automatic sources such as sensor networks, flood gauges and weather networks. With this oversight, your team can assess the extent and potential level of impact to determine the right course of action.

■ Aggregated multi-source data for a contextual, holistic view

PWP's dashboard makes it quicker and easier for alerts to be created and disseminated. The multi-language user interface provides the team with different message views. Templates ensure that all core elements of the message are completed. The 'create message screen' simplifies the selection of the language of the message and you can quickly click all the relevant dissemination channels. The configurable, role-based permission-based workflow supports your policies, by routing the message to the assigned Approver or provides you with the flexibility to send immediately with no approval step.

■ A multi-hazard alerting solution which supports multi-channel communication

As the only standardized emergency alerting technology service, cell broadcast enables you to meet all the public warning requirements. The PWP doesn't limit you to just one channel. You can disseminate alert and warning messages using a variety of channels.

Cell broadcast is the primary channel. The supporting channels include location-based SMS, email, voice dial-out, RSS feeds, social media, and Common Alerting Protocol (CAP) compliant systems, such as siren network, electronic signage, or those utilizing C and C1 interfaces (as specified by ATIS for WEA).

■ Security built-in for machines and humans

The PWP's permission-based control lets the System Administrator assign users access based on their role and group level requirements. There is a robust authentication process for both machine-to-machine and human access, including two-factor authentication, HTTPS and VPN. PWP's authentication validates the rights of the machine or user to access the system and information. It protects against identity theft and fraud which is critical for warning authorities to maintain trust as the originator of the emergency alert. The additional verification step in the Production environment ensures that erroneous messages are not sent, unduly causing disruption or distress to citizens.

■ A global proven track record

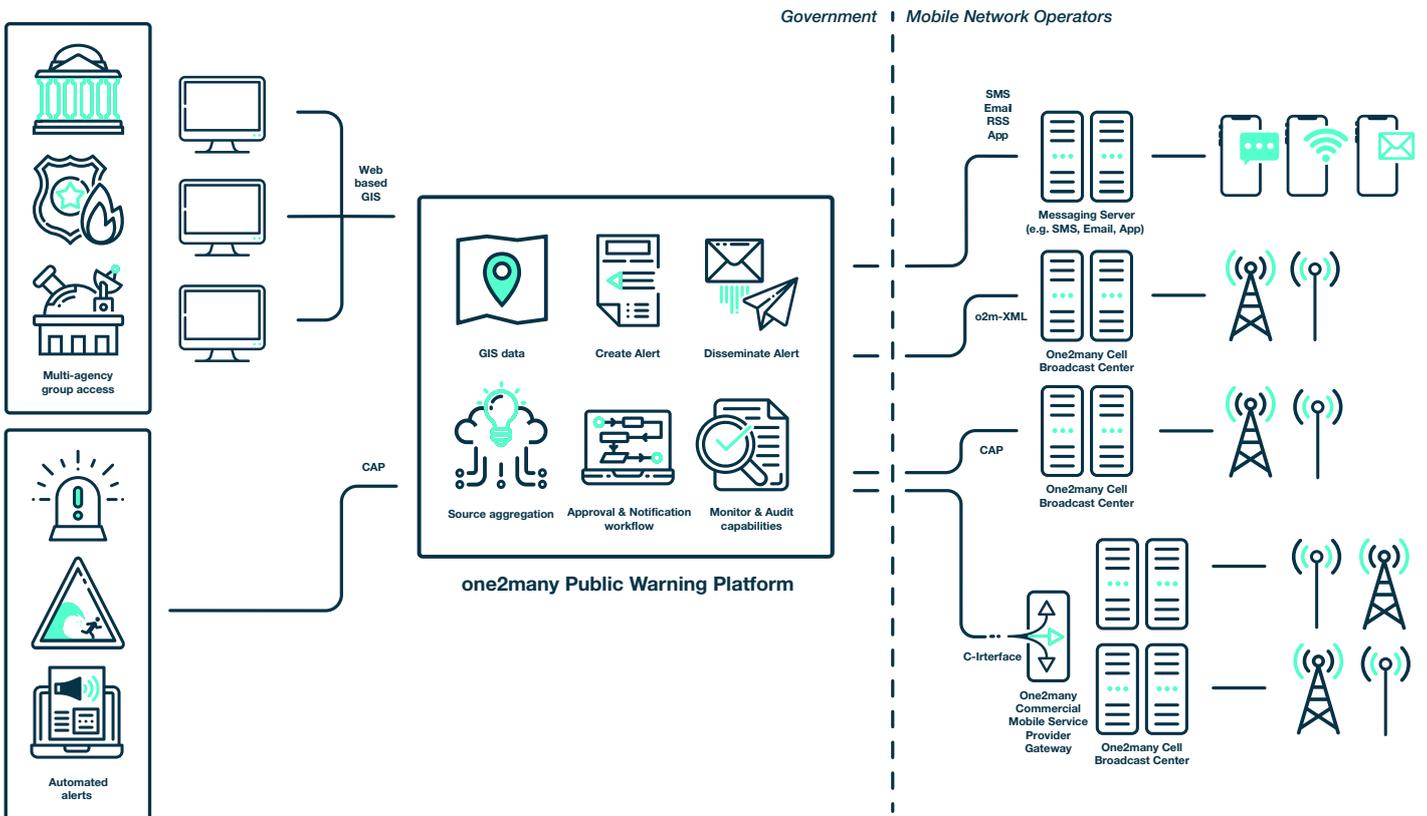
Only one2many combines telecommunication knowledge with over 20 years of practical experience of developing, implementing, and managing mission-critical solutions. One2many has the most extensive heritage in public warning solutions, multi-hazard alerting systems, and multi-channel early warning systems in the industry. Having built the world's first 2G Cell Broadcast Centre in 1996, one2many continues to be a first mover in innovation in 3G, 4G, and 5G, as well as being a leading light in the associated standardization bodies with their active membership and contribution. With over 85 installations at more than 55 customers in over 32 countries, one2many is a world leader in nationwide public warning solutions.

PUBLIC WARNING PLATFORM (PWP) OVERVIEW

The Public Warning Platform (PWP) is the emergency alerting hub. The PWP can also be referred to as a Cell Broadcast Entity (CBE). From the PWP, alert information is monitored and aggregated. Using the permission-based user interface, you can create emergency

alerts and messages with the automated workflow, ensuring that the required approval levels are followed. Once approved, the emergency communication is published and disseminated by selecting one of the multiple channels available from the dashboard.

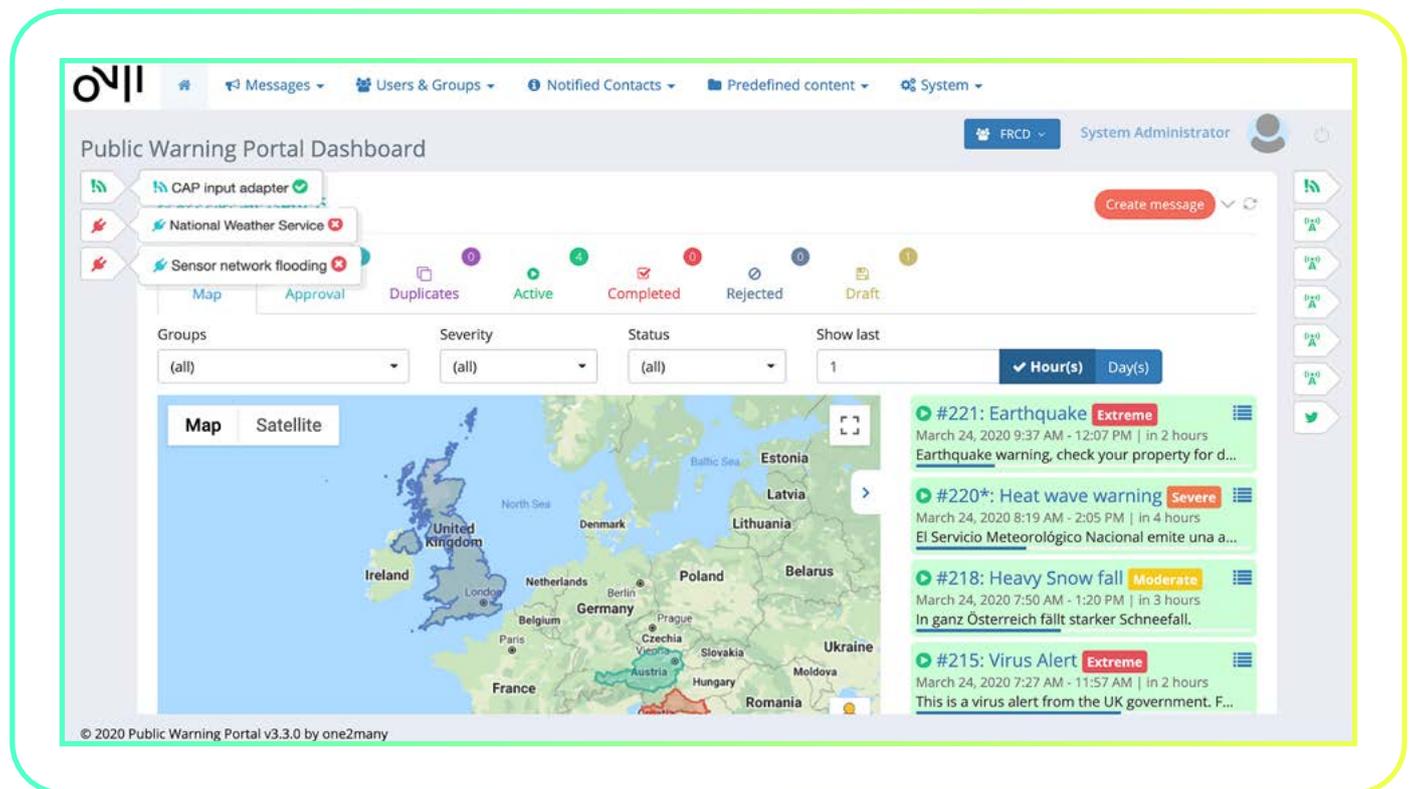
PUBLIC WARNING SOLUTION HIGH-LEVEL OVERVIEW



■ Source intelligence and aggregation

PWP provides functionality to monitor and gather relevant alert content from mobile apps and social media. All information is accessible in the dashboard. Timestamped data assists in information triaging, and you can overlay it onto a map for a visual representation. CAP lets you aggregate input from all threat and hazard related sources, including local emergency operation centers, warning

authorities such as police, fire, national coast guard, as well as automatic weather stations, flood gauges and sensor networks by using CAP. Also, public alerts, Google alerts and WMO alerts are captured. With this oversight, your team can assess the extent and potential level of impact to determine the right course of action.



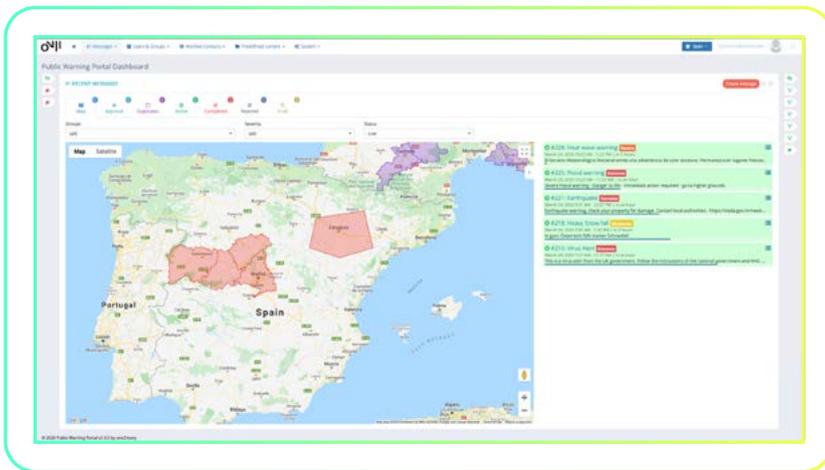
Input from multiple sources

Input from multiple sources enables you to have a consolidated, corroborated view of the imminent threat. You can ensure appropriate precautions are taken and confirmed information supplied at the earliest opportunity to the citizens in the affected areas.

■ Alert creation and approvals

PWP's dashboard is an intuitive, permission-based, user interface that makes it quicker and easier for alerts to be created. You also have the flexibility to configure the dashboard language to the native language of each user. The dashboard's visual layout minimizes the risk of errors. The clear interface lets you see the six different message views: draft, map, approval, duplicate, active and completed. Filtering adds an extra dimension, including time, severity, or status. The warning

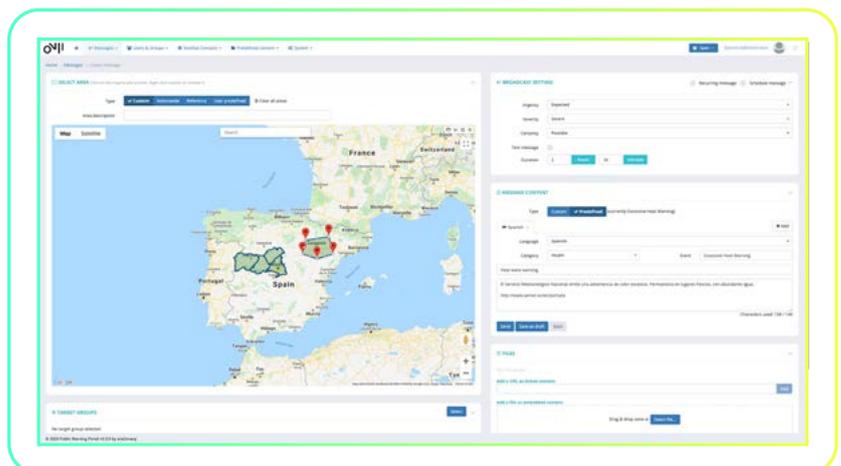
messaging coverage zone is created by using the dashboard's interactive map functionality. You can also import maps, shape files and predefined areas using one of the supported formats: KMZ/KML, GeoJSON and ESRI. Being able to target a specific geographic area, allows you to provide particular information to only the affected citizens, instead of a general countrywide announcement, allowing the crisis team to manage the emergency better.



Input from multiple sources

Contained within the dashboard is a message creation screen. Here you can create warning messages for your jurisdiction. The message creation screen has dedicated panels to ensure that all pertinent information is included in a structured and consistent manner. You have the option to create your own message or select one of the pre-defined templates.

The PWP's role-based permissions support your Emergency Warning policies and are easy to configure. Where warning messages need to be approved before they are submitted to the dissemination channels, the automated workflow routes them to the assigned Approver, who can accept or reject a message. Alternatively, messages can be sent immediately with no approval step if the message meets your pre-determined criteria and policies.

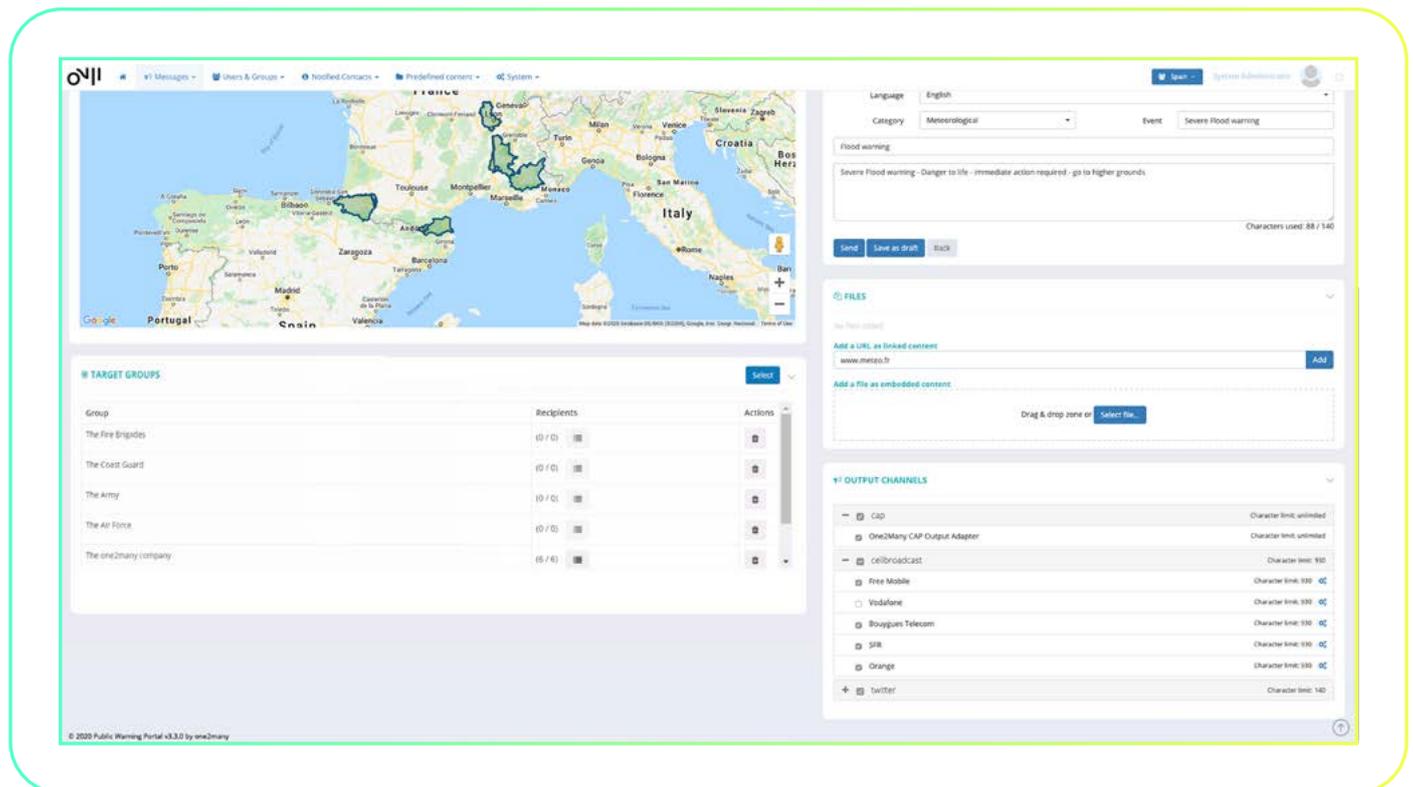


Message creation screen

■ Alert dissemination and publication

Selecting the relevant dissemination channel(s) to achieve the most extensive coverage is simple. Within the creation screen, click on the associated channel adapter, including cell broadcast, social media (Twitter and Facebook), Websites/RSS feeds and CAP (Common Alerting Protocol) applications.

The PWP has built-in safeguards to lower the risk that an incorrect message is sent accidentally. Before messages are sent, you need to enter your credentials. PWP's role-based permissions ensure that only designated roles can send out warning messages.



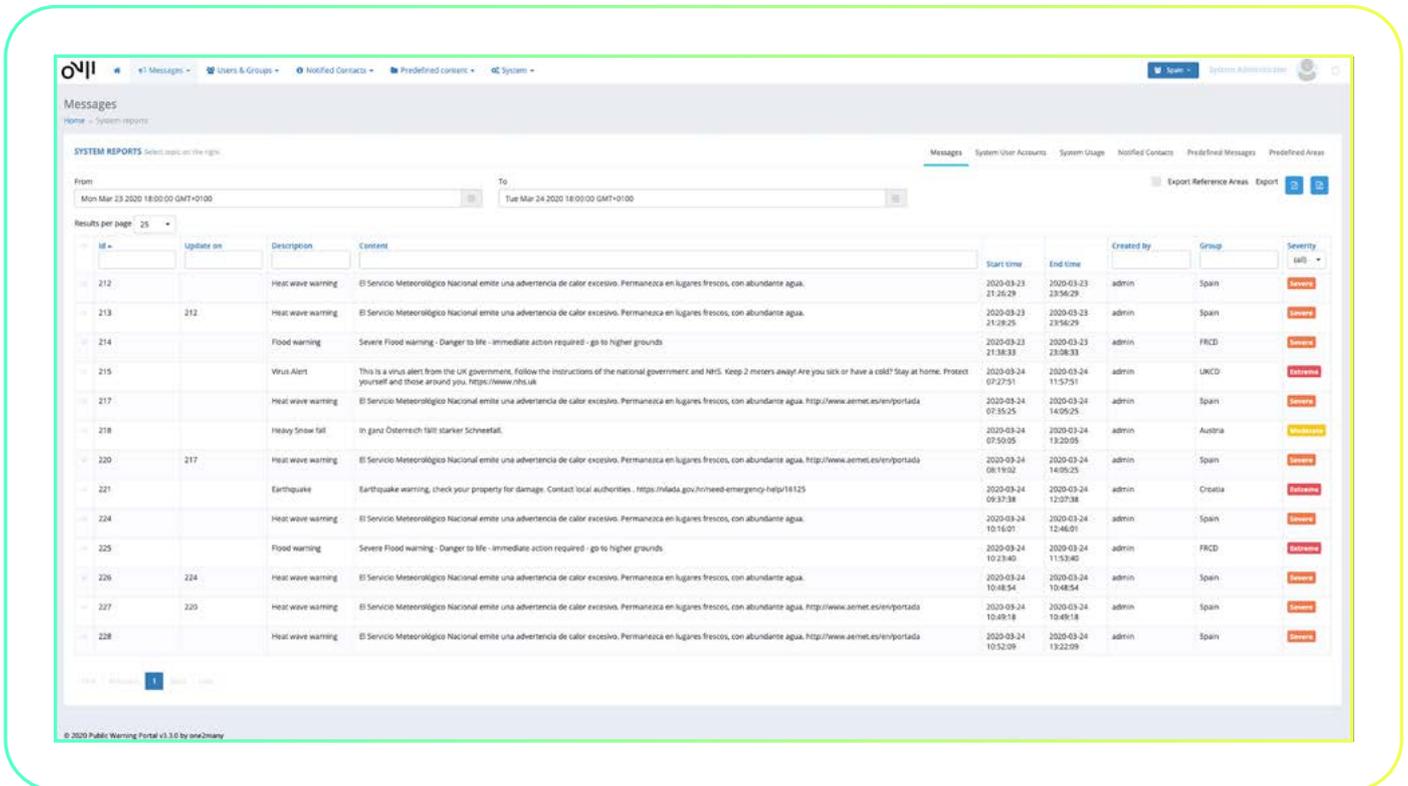
Multi channel message dissemination



The PWP lets you publish alert and warning messages in multiple locations and across different platforms to ensure that you reach all affected citizens in a specific geographic area. These include websites (government ministries, civil defence) using RSS feeds, Google Public Alerts, WMO Alert Hub, using CAP messages, Ministry/Civil Defense social media pages (via the Facebook and Twitter APIs), Mobile Apps using CAP messages via REST web services.

■ Monitor and Audit capabilities

All PWP activities are logged in an audit trail. It shows all the actions taken by users and administrators from the time they logged on to logging out of the system.



Extensive monitoring and auditing capabilities

It is common, in some countries, that investigations are performed after an emergency, to assess how effective the event was handled and identify any areas for improvement. With the PWP, you can generate an automatic report for each emergency or a specific emergency to comply with any due diligence investigation swiftly.

■ Mission Critical Readiness

Whether you're a Government or Mobile Cellular Provider, the PWP provides you with a scalable, secure telco-grade emergency warning platform.

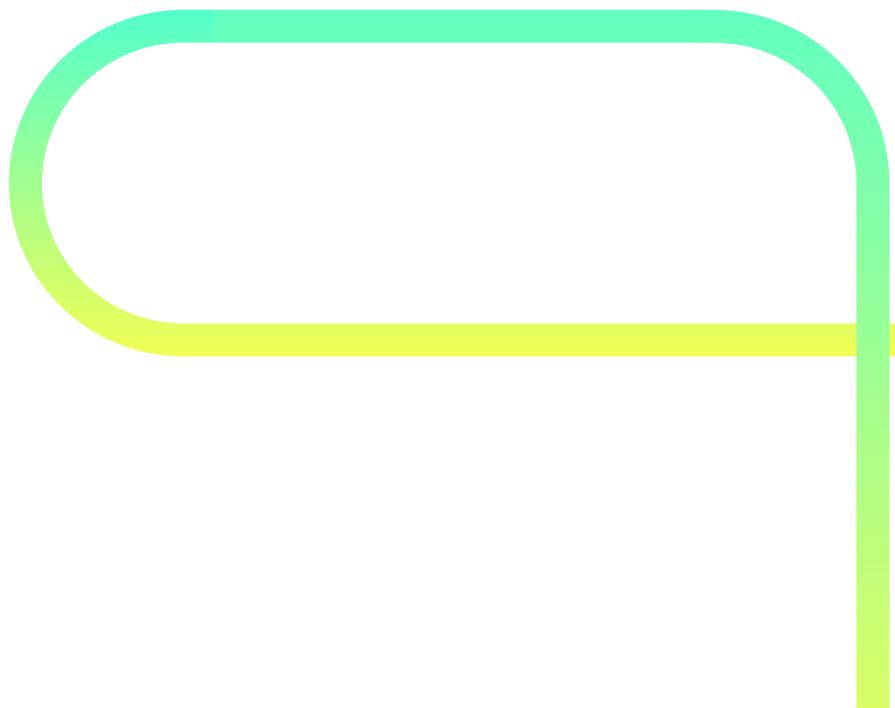
System Administrators assign user access based on their roles. As the PWP uses role-based permissions, this guarantees that you are up and running quickly, having only access to the relevant groups and dashboard functionality you require. For instance, as an Author, Viewer, Approver. Depending on the assigned Group and your role, you may be entitled to generate alerts at a national or local level.

By default, new users are not automatically activated. Instead, each user receives a time-limited activation link which authenticates the user and allows them to set their own password. Where required,

the PWP supports external authentication in line with your operating procedures. Using an exposed SAML interface, the PWP can integrate with pre-existing authentication structures. When connecting machine-to-machine input via CAP digital signatures, a two-factor authentication process is followed.

The PWP is a high available and geo-redundant solution, with automatic failover. From an architecture perspective, there is no single point of failure due to the layered redundancy. The telco-grade PWP provides identical geo-redundant sites that have 5-nines availability.

With the PWP, you have flexible deployment models to suit your needs and budget. The solution is available on-premise or as a cloud-based managed service.





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