Alerting and CAP at The Weather Company, an IBM Business

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D. Michael Grogan
Senior Manager, Weather Systems Data Acquisition

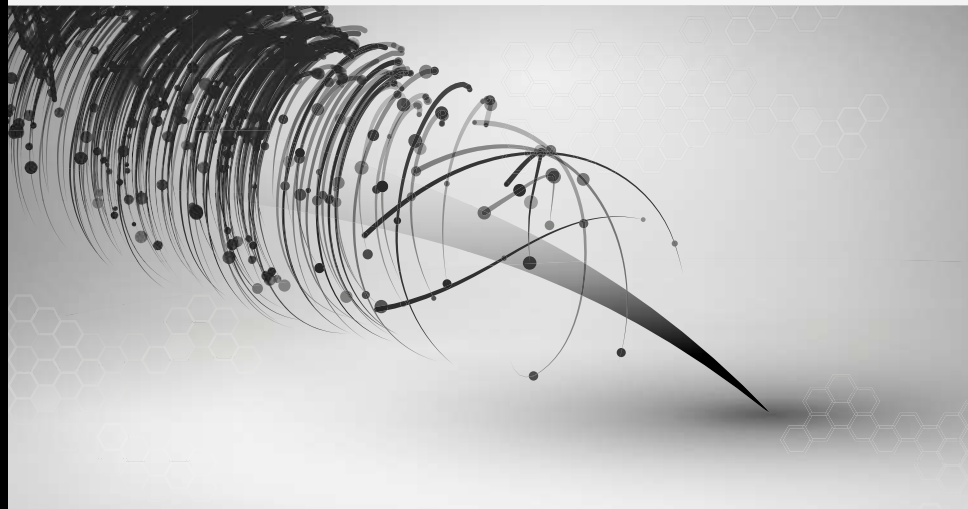
IBM

Presentation overview

- Review of several IBM weather brands
- Broad glance at IBM & The Weather Company products and capabilities in the weather alerting space
- Very high-level overview of alert data processing and distribution approaches
- Highlights of decisions and considerations choosing CAP vs non-CAP data
- Questions and discussion

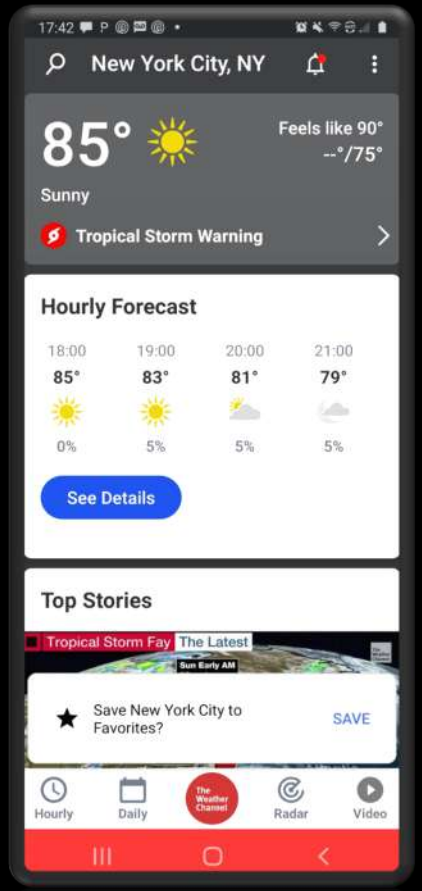
IBM & its weather brands

- IBM acquired The Weather Company on January 29, 2016
- Weather products for consumers (B2C) and businesses (B2B) offered under several IBM-owned brands
- IBM – The Weather Company (TWC) – The Weather Channel – Weather Underground
- The Weather Channel digital properties (mobile applications, weather.com, etc.) owned by IBM
- The Weather Channel U.S. television network, under licensed branding, is owned by Entertainment Studios



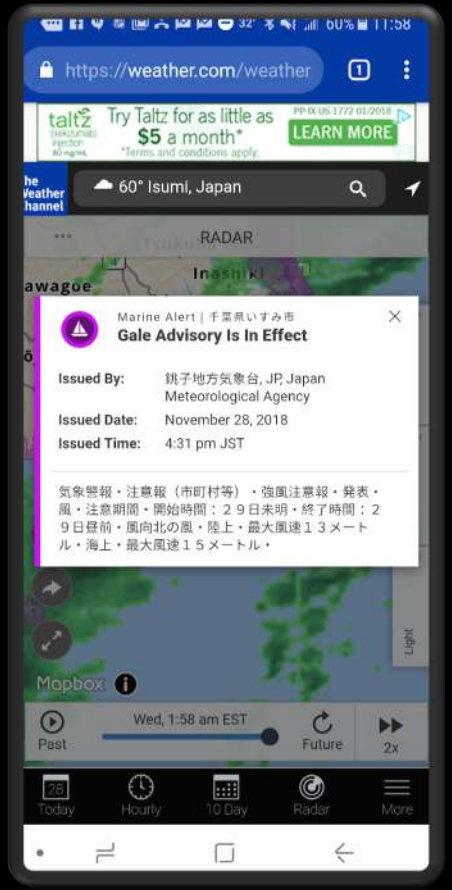
IBM/TWC weather alerting

- Broad international reach
- 330 million monthly consumer users
- TWC role is amplification of government alerting information
- Backed by team of software engineers and meteorological experts dedicated to government weather alerts
- The Weather Channel (right) and Weather Underground mobile apps give users quick, palm-accessible information on emerging weather threats
- “Subscribable” Push notifications for current or important locations

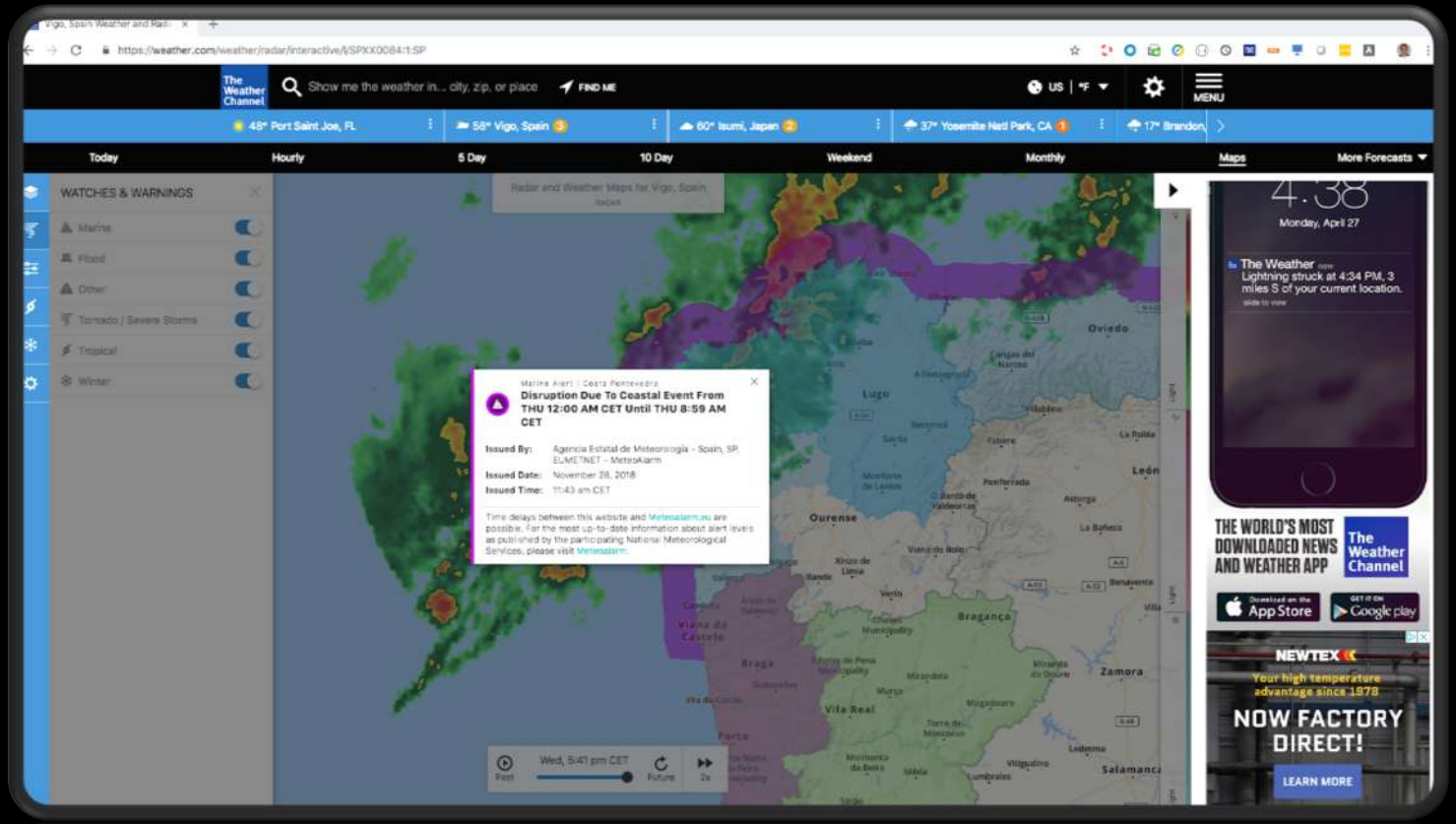


IBM/TWC weather alerting

- The Weather Channel website weather.com equally emphasizes government warnings
- Desktop and mobile browser users kept abreast of potential weather threats to safety and property
- Gale Advisory from Japanese Meteorological Agency shown on weather.com mobile website



IBM/TWC weather alerting



weather.com website

IBM/TWC weather alerting

- TWC has deep history and experience in broadcast meteorology
- Continues to develop innovative media solutions
- The Max weather software ecosystem provides broadcast visualization of government alerting information, including the ubiquitous broadcast weather “crawl” powered by TWC’s LiveWire software.

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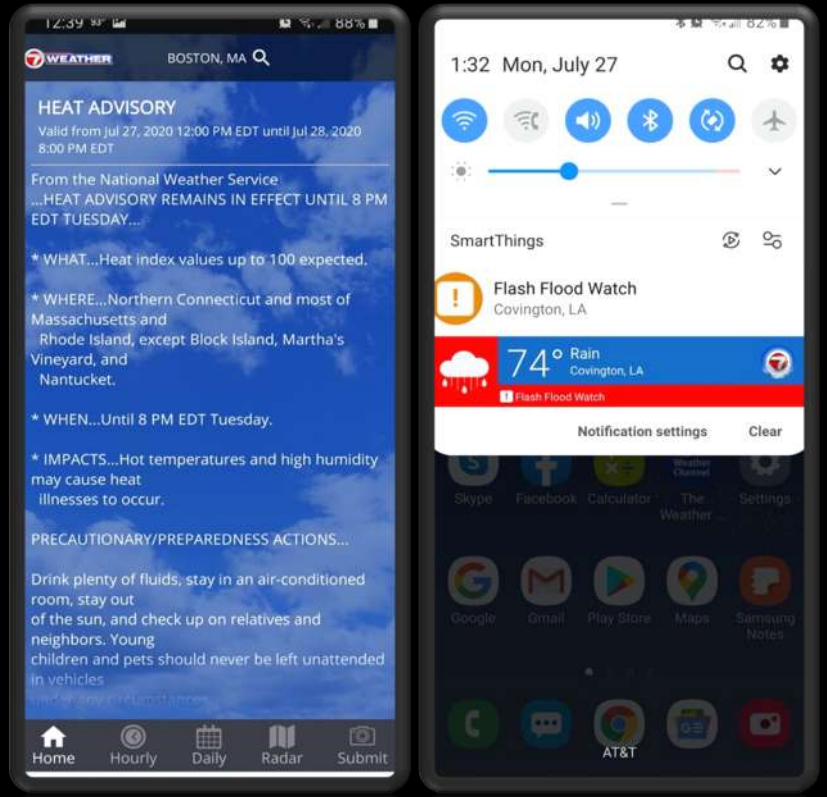
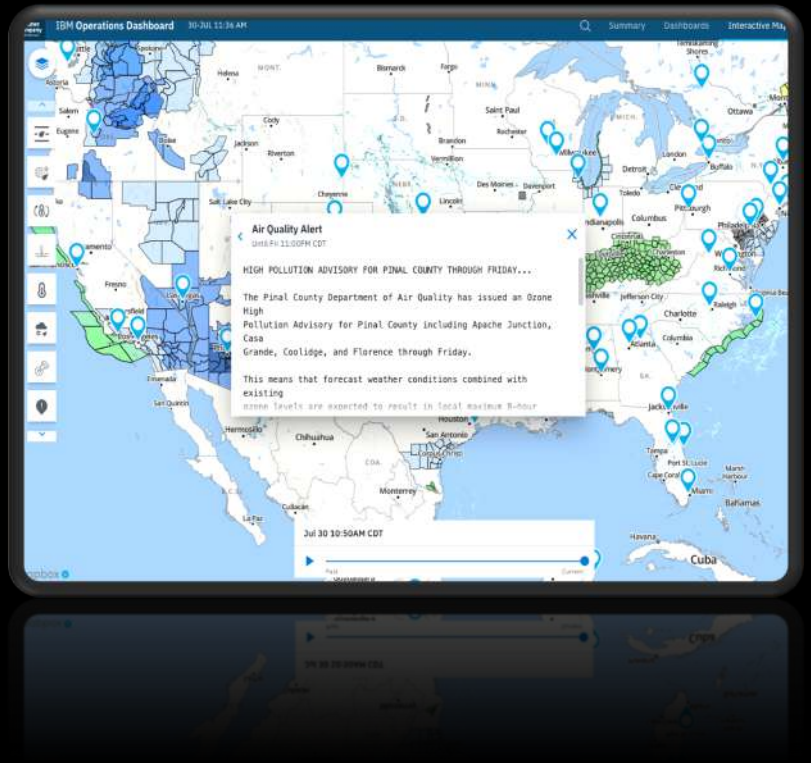
- ”Private-label” weather applications operated by TWC for broadcast weather entities include government weather alerts.



IBM/TWC weather alerting

- IBM Weather Operations Center – plan for and respond to critical weather events to ensure business continuity
- Operations Dashboard component powers high-level insights for businesses sensitive to weather (and other) activity



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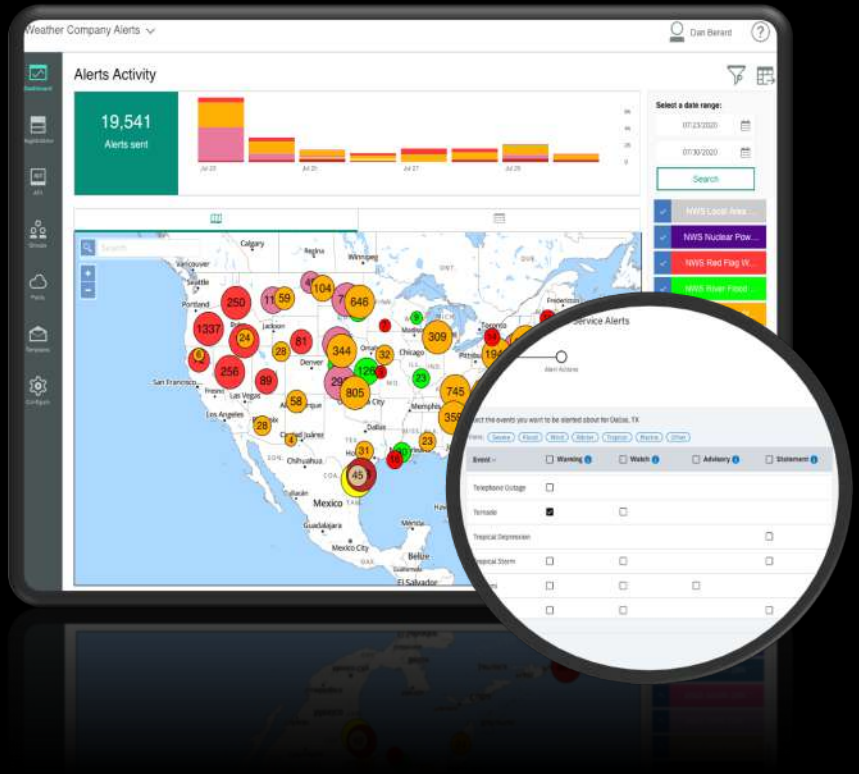

IBM/TWC weather alerting

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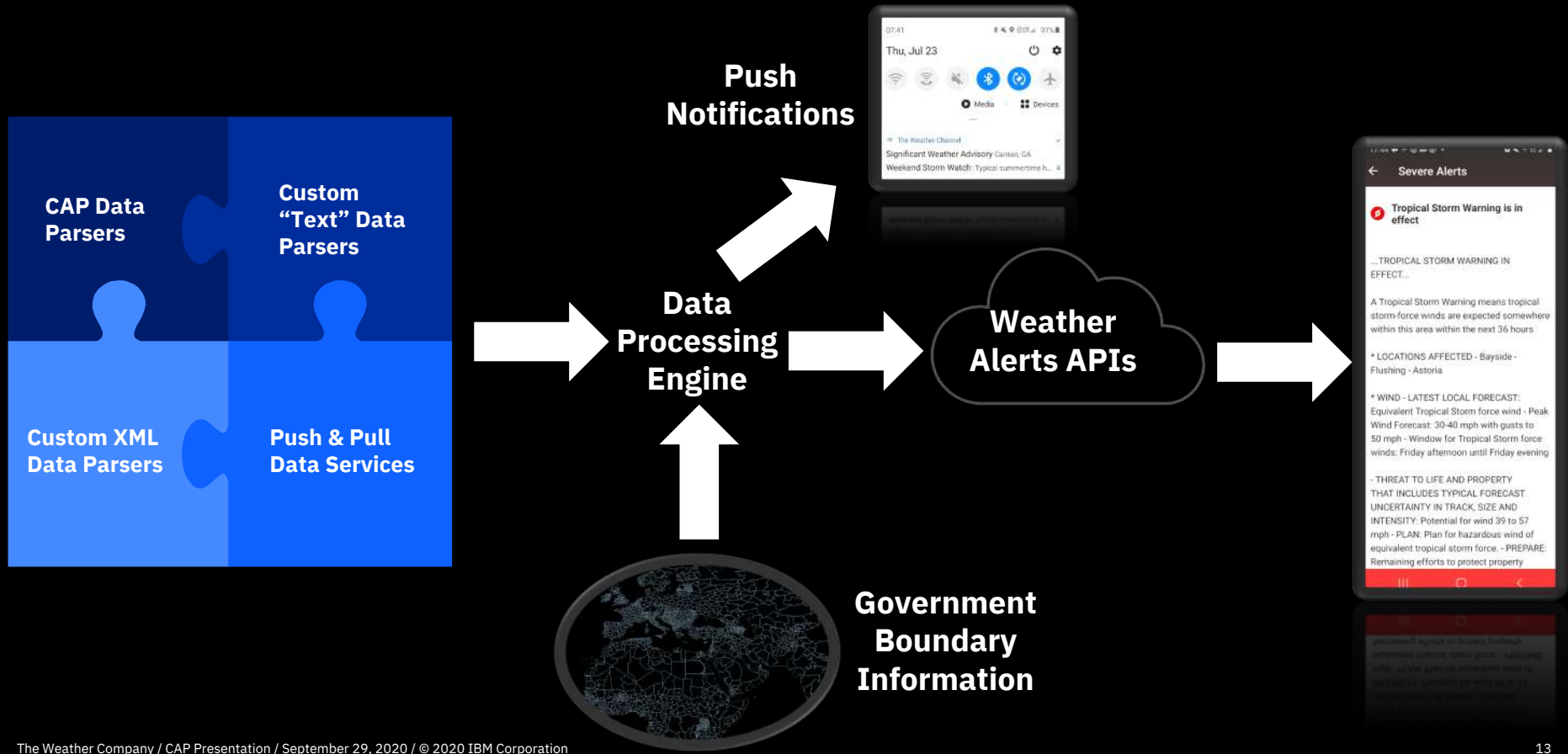
- Operations dashboard component powers high-level insights for businesses sensitive to weather (and other) activity
- Scalable alerting pushes out action items to thousands of personnel
- Massively scalable Weather API services provide access to variety of weather data including government alerts for use by enterprises in their own products, systems, software, and applications.

IBM/TWC alerts processing

- Individually-sourced alerts data
  - U.S. National Weather Service
  - Environment and Climate Change Canada
  - Japan Meteorological Agency
  - Australia Bureau of Meteorology
- Aggregated alerts data
  - Europe via Meteoalarm

IBM/TWC alerts processing



CAP vs Non-CAP Choices

- The Weather Company has invested time and resources in developing CAP processing capabilities
- CAP data **is preferred & desired** by The Weather Company, but still not always the best fit for each circumstance
- Is CAP available for a country / entity?
- Does a custom or legacy format have more information or is it easier to parse?
- Which format satisfies TWC's own API required fields best?
- Is CAP data treated with the same priority as custom formats?

U.S. NWS CAP example

NONCAP

```
471
WWUS54 KMRX 130332
SVSMRX

Severe Weather Statement
National Weather Service Morristown TN
1132 PM EDT Sun Apr 12 2020

TNC065-130345-
/O.CON.KMRX.TO.W.0010.000000T0000Z-200413T0345Z/
Hamilton TN-
1132 PM EDT Sun Apr 12 2020

...TORNADO EMERGENCY FOR OOLTEWAH AND COLLEGEDALE...

...A TORNADO WARNING REMAINS IN EFFECT UNTIL 1145 PM EDT FOR
SOUTHEASTERN HAMILTON COUNTY...

At 1131 PM EDT, a confirmed large and destructive tornado was
located
near Cohutta, or 7 miles northeast of Ringgold, moving east
at 45
mph.

TORNADO EMERGENCY for OOLTEWAH AND COLLEGEDALE. This is a
PARTICULARLY DANGEROUS SITUATION. TAKE COVER NOW!

HAZARD...Deadly tornado.

SOURCE...Radar confirmed tornado.

MPACT...You are in a life-threatening situation. Flying
is may
      be deadly to those caught without shelter. Mobile

      ill be destroyed. Considerable damage to homes,
```

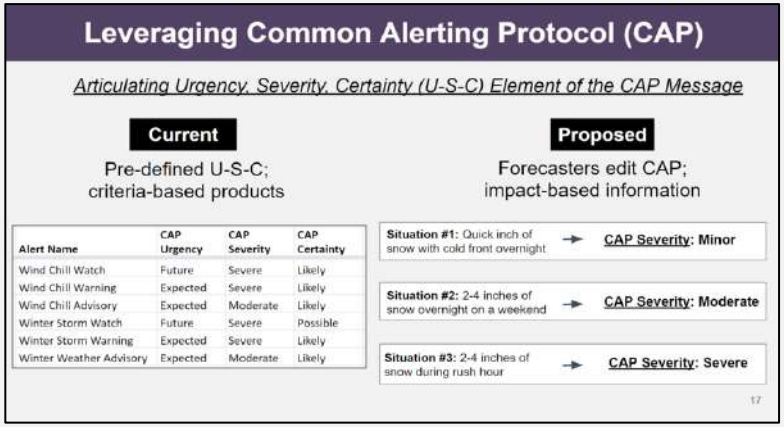
CAP

```
<?xml version="1.0" encoding="UTF-8" standalone="yes".
<alert xmlns:ns2="http://gov.fema.ipaws.services/caprequ
xmlns="urn:oasis:names:tc:emergency:cap:1.2"
xmlns:ns4="http://gov.fema.ipaws.services/IPAWS_CAPService/"
xmlns:ns3="http://gov.fema.ipaws.services/capresponse">
    <identifier>NWS-IDP-PROD-4154576-3518577</identifier>
    <sender>w-nws.webmaster@noaa.gov</sender>
    <sent>2020-04-12T23:32:00-04:00</sent>
    <status>Actual</status>
    <msgType>Update</msgType>
    <scope>Public</scope>
    <code>IPAWSv1.0</code>
    <note></note>

<references>w-nws.webmaster@noaa.gov,NWS-IDP-PROD-4154559-351
8560,2020-04-12T23:27:00-04:00
w-nws.webmaster@noaa.gov,NWS-IDP-PROD-4154529-3518533,2020-04
-12T23:16:00-04:00
w-nws.webmaster@noaa.gov,NWS-IDP-PROD-4154537-3518540,2020-04
-12T23:18:00-04:00
w-nws.webmaster@noaa.gov,NWS-IDP-PROD-4154552-3518554,2020-04
-12T23:24:00-04:00
w-nws.webmaster@noaa.gov,NWS-IDP-PROD-4154555-3518556,2020-04
-12T23:25:00-04:00</references>
    <info>
        <language>en-US</language>
        <category>Met</category>
        <event>Tornado Warning</event>
        <responseType>Shelter</responseType>
        <urgency>Immediate</urgency>
        <severity>Extreme</severity>
        <certainty>Observed</certainty>
        <eventCode>
            <valueName>SAME</valueName>
            <value>SVS</value>
        </eventCode>
        <eventCode>
```

U.S. NWS CAP example

- IBM / TWC receives both NWS custom text and U.S. NWS CAP weather alerts
- IBM / TWC primarily processes only the U.S. NWS custom text data
- Today, U.S. NWS CAP is created in a centralized, post-processed fashion
- U.S. is initiating deployment of software to NWS offices to allow for creation of CAP directly by its forecasters, including Urgency, Severity, Certainty fields
- IBM / TWC currently engaged as a partner with U.S. NWS; discussing CAP improvements and prioritized data handling.



U.S. NWS proposal for direct forecaster editing of CAP U-S-C fields (Jacks and Nagele 2020)[1].

```
<info>
   <language>en-US</language>
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   <eventCode>
      <valueName>SAME</valueName>
      <value>TOR</value>
   </eventCode>
```

CAP responseType field in CAP-formatted NWS Tornado Warning.

[1]Jacks, Eli, and Danielle Nagele. 2020. *A Proposal to Revamp the NWS Watch, Warning, and Advisory System.* Webinar. Silver Spring, MD, Webinar., June 3.

Australia & Canada examples

- Australia ABOM's CAP vs AMOC
  - Issue time field availability ?
  - Synopsis information ?
  - Headline text information ?
  - Phenomena element ?
  - AMOC most widely available & preferred
  - CAP can be processed if available
- Canada CAP (ECCC)
  - Wide availability
  - National Alert Aggregation & Dissemination System (NAAD) / National Public Alerting System (NPAS)
  - CAP used extensively by TWC
  - Some legacy data still processed

Thank you

D. Michael Grogan
Senior Manager, Weather Systems Data Acquisition
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michael.grogan@us.ibm.com
+1-404-963-8561
ibm.com