

# Guidance TAFs served by an NNEW Web Feature Service

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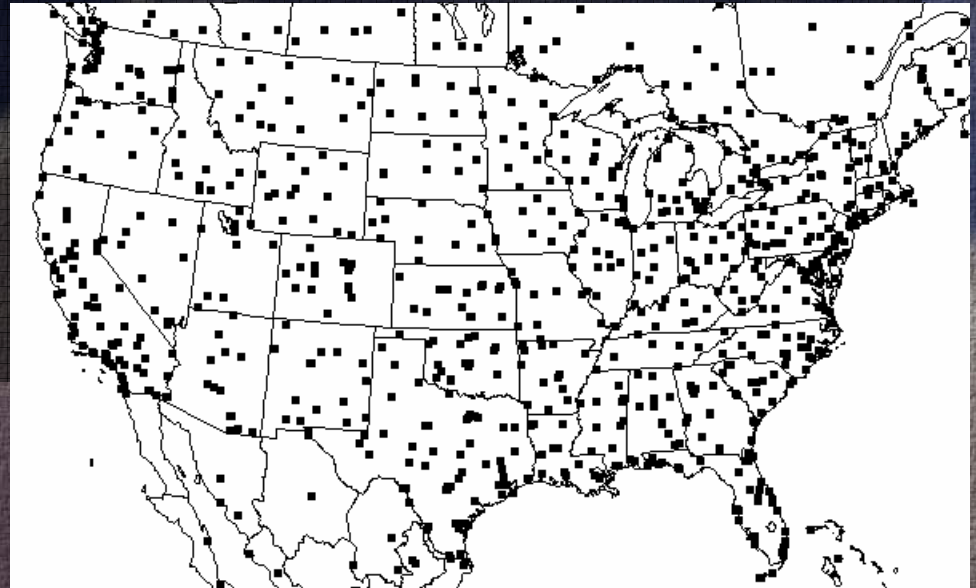
# Acknowledgements

- Mark Oberfield
- Steve Olson

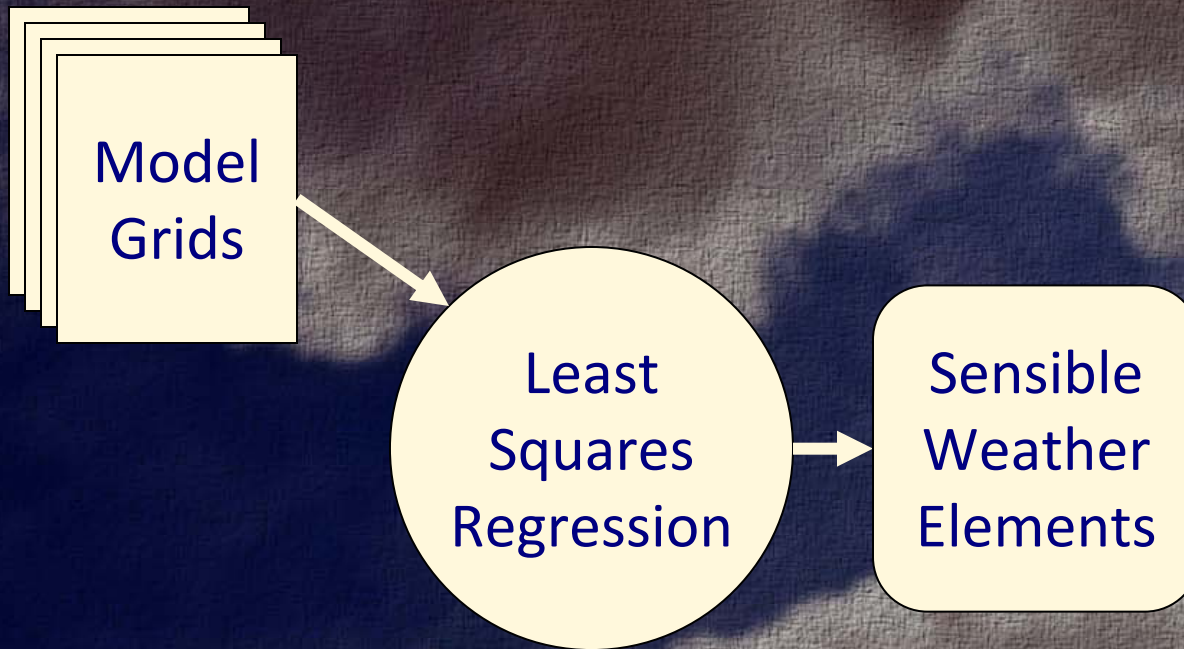
- Dan Gilmore
- John Schattel

# Terminal Aerodrome Forecasts (TAF)

- Operational forecasts of aviation weather conditions at an aerodrome
- National Weather Service (NWS) issues TAFs at least 4 times daily for ~700 locations
- Text code form
- Evolving WXXM form

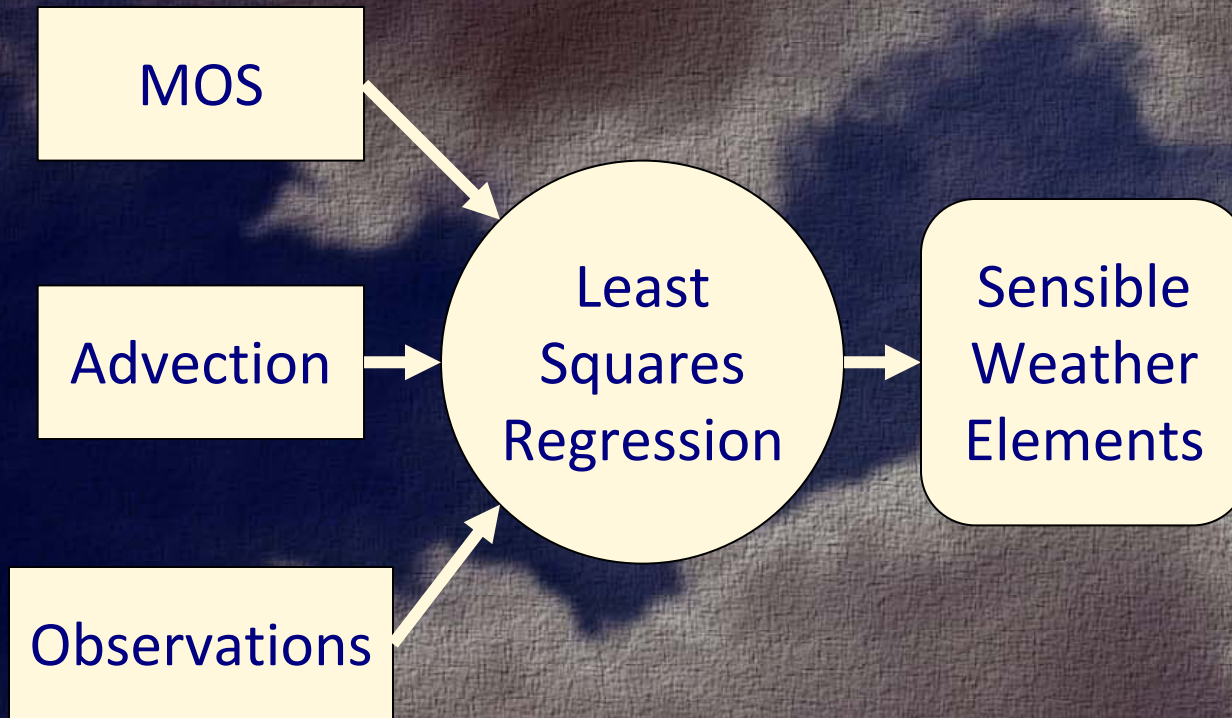


# Model Output Statistics (MOS)



- Successful, operational forecast technique
- Accurate, reliable guidance
- Ceiling, visibility, and many other weather elements
- Four times daily

# Localized Aviation MOS Program (LAMP)



- Update to MOS
- Focus on aviation weather elements
- Issued hourly

# Delivering LAMP

- Today
  - Text bulletins
  - Guidance TAFs in text
  - BUFR, GRIB
- NextGen
  - Grids via Web Coverage Service (WCS)
  - Guidance TAFs in WXXM
  - Probabilistic TAFs in WXXM

# LAMP Experimental Guidance TAFs

```
KBWI 212320Z 2200/2306 13003KT P6SM SCT025 OVC040  
FM220200 00000KT 5SM BR SCT025 BKN040  
FM220600 00000KT 3SM BR FEW002 SCT007 BKN060  
FM221100 00000KT P6SM BKN120  
FM221400 30007G16KT P6SM SCT050  
FM222000 28008G15KT P6SM BKN250=
```

- Innovative technology that combines LAMP probabilities with human-issued forecasts to emphasize the strengths of both.

# LAMP Experimental Guidance

## TAFs in WXXM

FM241300 13017KT 2SM BR OVC010CB

```
<avwx:windSpeed uom="kt">17</avwx:windSpeed>
```

```
<avwx:windDirection uom="deg">130</avwx:windDirection>
```

```
<avwx:prevailingVisibility uom="SM">2</avwx:prevailingVisibility>
```

```
<wx:CloudCondition gml:id="KMEM_46">
```

```
  <wx:base uom="ft">1000</wx:base>
```

```
  <wx:amount>OVERCAST</wx:amount>
```

```
  <wx:types>CUMULONIMBUS</wx:types>
```

```
</wx:CloudCondition>
```

```
<wx:WxCondition gml:id="KMEM_47">
```

```
  <wx:weatherModifier>MODERATE</wx:weatherModifier>
```

```
  <wx:weatherPhenomenon>MIST</wx:weatherPhenomenon>
```

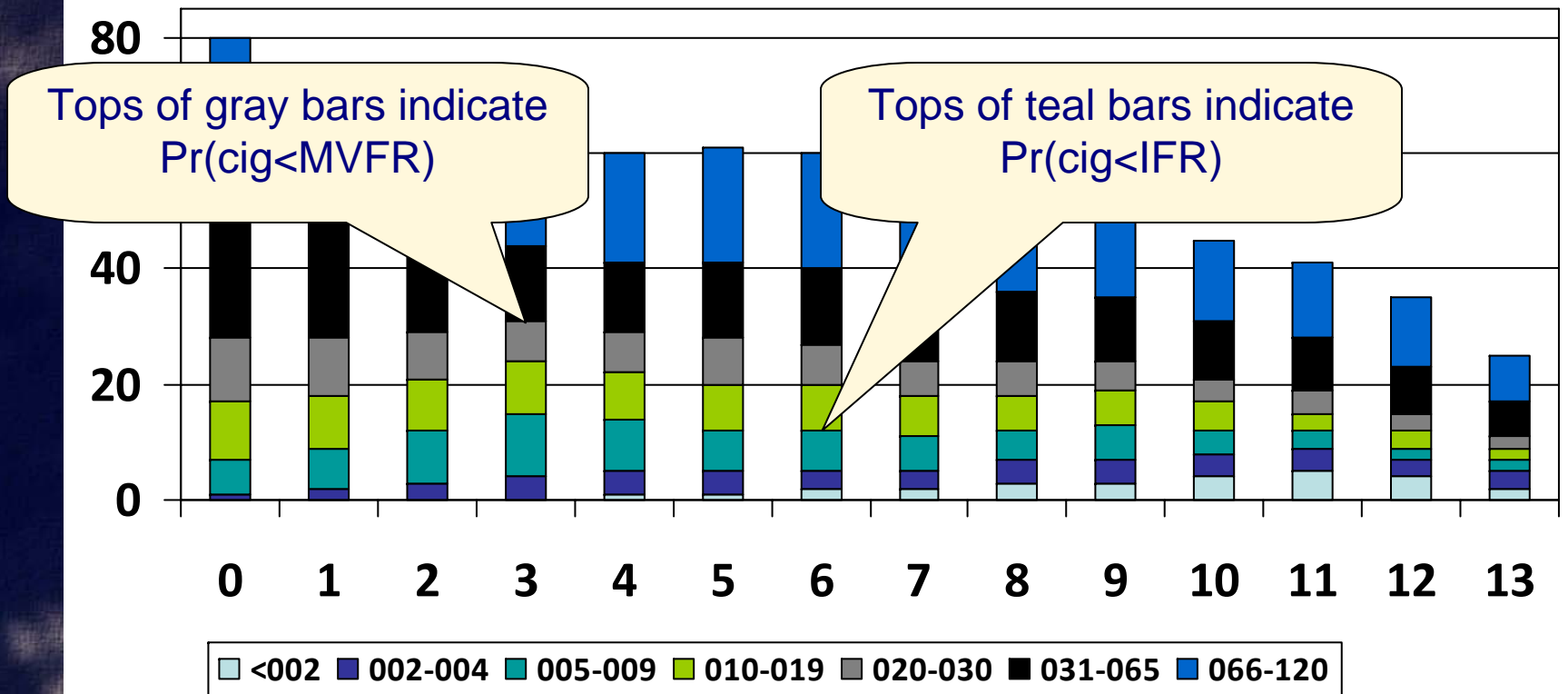
```
  <wx:wxCode>BR</wx:wxCode>
```

```
</wx:WxCondition>
```



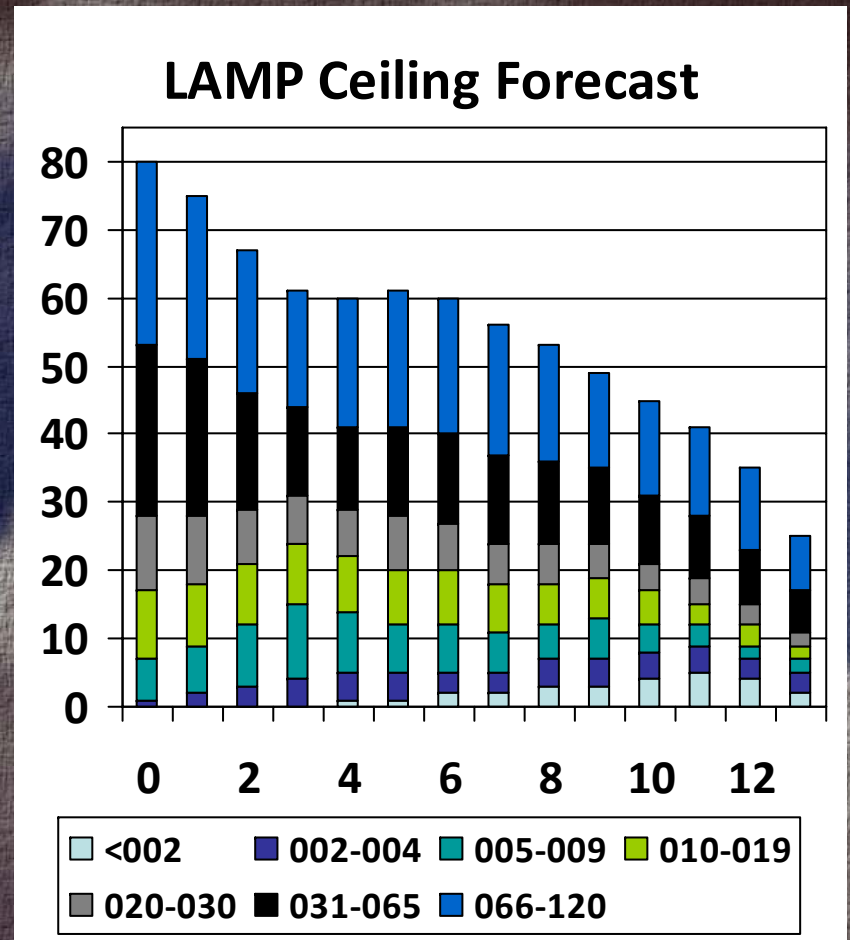
# LAMP TAFs in WXXM

## LAMP Ceiling Forecast



# LAMP TAFs in WXXM

- Forecast probability distribution of ceiling
- Valuable information for aviation decision making



# “Probabilistic TAFs” in WXXM

```
wx: probability>4</wx: probability>  
  <wx: interval >  
    <wx: Range>  
      <wx: end uom="SM">0.5</wx: end>  
      <wx: rangeModifier>LessThan</wx: rangeModifier>  
    </wx: Range>  
  </wx: interval >
```

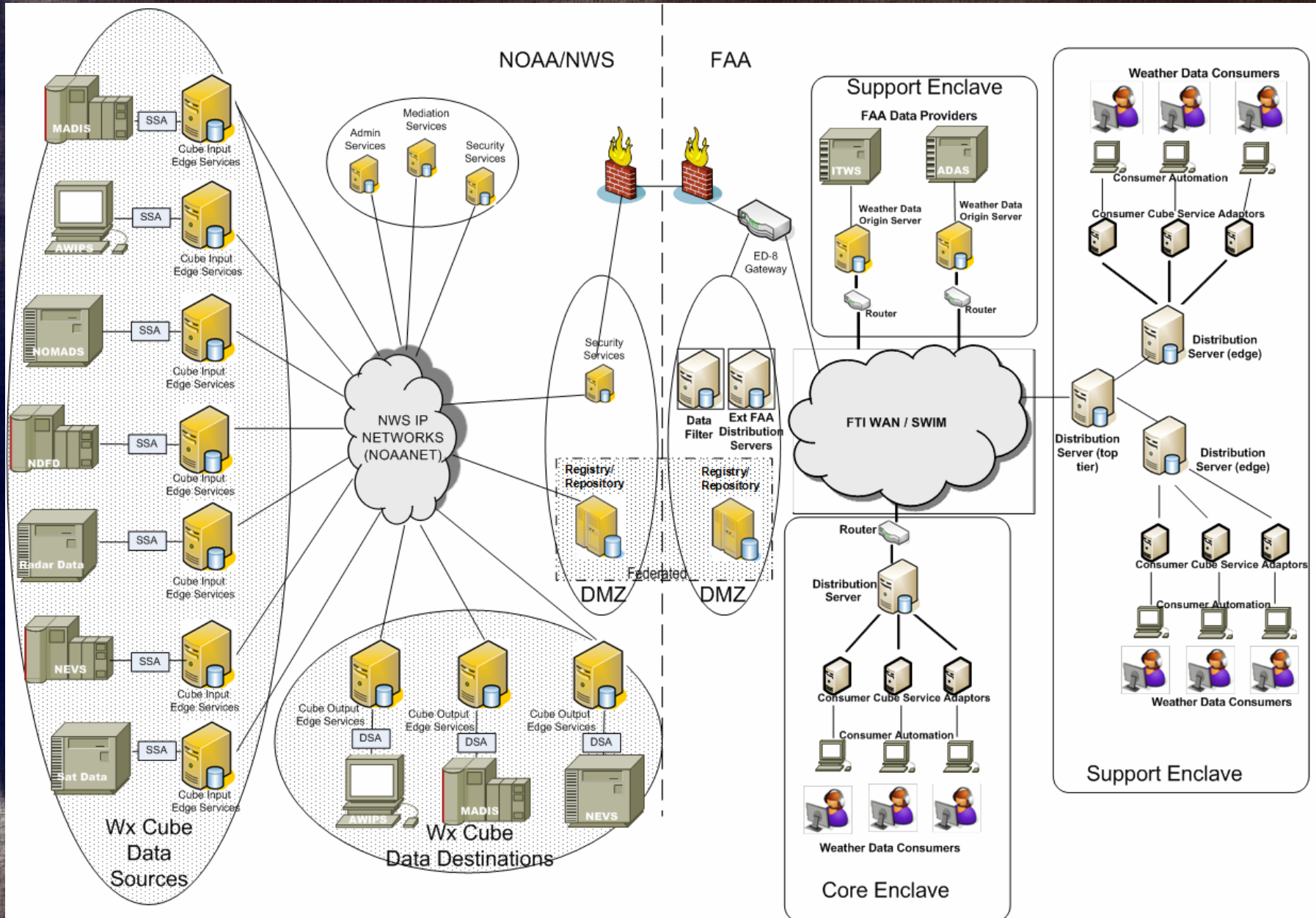
```
<wx: probability>21</wx: probability>  
  <wx: interval >  
    <wx: Range>  
      <wx: end uom="SM">1.0</wx: end>  
      <wx: rangeModifier>LessThan</wx: rangeModifier>  
    </wx: Range>  
  </wx: interval >
```

```
<wx: probability>65</wx: probability>  
  <wx: interval >  
    <wx: Range>  
      <wx: end uom="SM">2.0</wx: end>  
      <wx: rangeModifier>LessThan</wx: rangeModifier>  
    </wx: Range>  
  </wx: interval >
```

# “Probabilistic TAFs” in WXXM

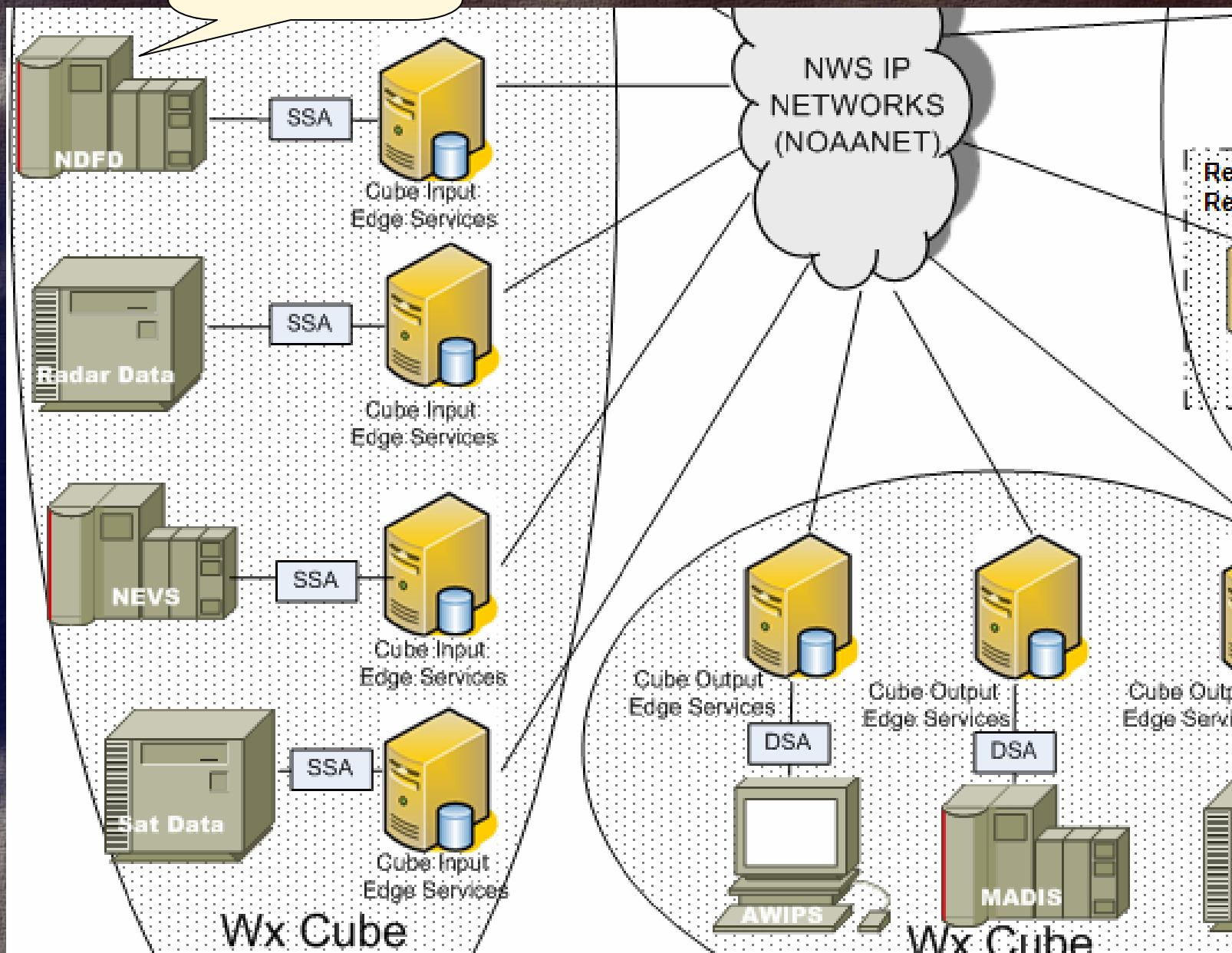
- Not just ceiling
- Conditional ceiling (conditioned on precipitation occurring)
- Visibility
- Conditional visibility (conditioned on precipitation occurring)
- Chance of freezing/frozen precipitation

# Notional NextGen Architecture



We are here.  
NDFD/NDGD

Zoom in...



# Collaborating to Deliver Web Services

- NOAA will have many data sources
- No need for Cube Edge Input Servers (CEIS) at every data source
- MDL will implement a set of Source Service Adapters (SSA) and transfer WXXM documents to CEIS at NOAA's Earth System Research Laboratory (ESRL)

# Collaborating to Deliver Web Services

