

EXI, XQuery and the Weather

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The Weather



A Forecast?



A Forecast!

```
<?xml version="1.0" encoding="UTF-8"?>
<Forecast timeStep="2011-09-13T12:00:00Z" sitelid="3880">
  <WeatherElements>
    <WeatherElement uom="num" name="SignificantWeather">3.0</WeatherElement>
    <WeatherElement uom="deg" name="WindDirection">246.0</WeatherElement>
    <WeatherElement uom="prcpAmt" name="PrecipitationAmount">0.0</WeatherElement>
    <WeatherElement uom="num" name="MaxUVIndex">2.0</WeatherElement>
    <WeatherElement uom="seconds" name="SunshineDuration">8532.0</WeatherElement>
    <WeatherElement uom="pa" name="MeanSeaLevelPressure">101340.0</WeatherElement>
    <WeatherElement uom="metres" name="Visibility">26324.0</WeatherElement>
    <WeatherElement uom="num" name="DayNight">1.0</WeatherElement>
    <WeatherElement uom="degC" name="ScreenTemperature">17.71</WeatherElement>
    <WeatherElement uom="percent" name="ScreenRelativeHumidity">66.19</WeatherElement>
    <WeatherElement uom="mps" name="WindSpeed">9.33</WeatherElement>
    <WeatherElement uom="mps" name="GustSpeed">18.01</WeatherElement>
    <WeatherElement uom="percent" name="PoP">6.0</WeatherElement>
    <WeatherElement uom="degC" name="FeelsLikeTemperature">13.29</WeatherElement>
  </WeatherElements>
</Forecast>
```

A Web Service

- Every 3 hours the Public Weather Service requires an 8 day forecast for every 3 hours of every day for 10,000 UK and global sites.
- That's 640,000 forecasts at a time to be delivered via RESTful web service.
- That's about 670MB of XML.

EXI

- Trialled a number of alternative technologies: Protocol Buffers, Avro, Kryo.
- EXI performed as well as any of them in terms of compression and speed.
- Very easy to incorporate into an existing XML tool-set
- Our 670MB of XML becomes 63MB of EXI.

But what about the XQuery?

- eXist-db development version (1.5) now has an EXI extension module for encoding to/from EXI.
- Will (hopefully) soon allow EXI serialisation of a query result.
- Demo time!

Thank you.