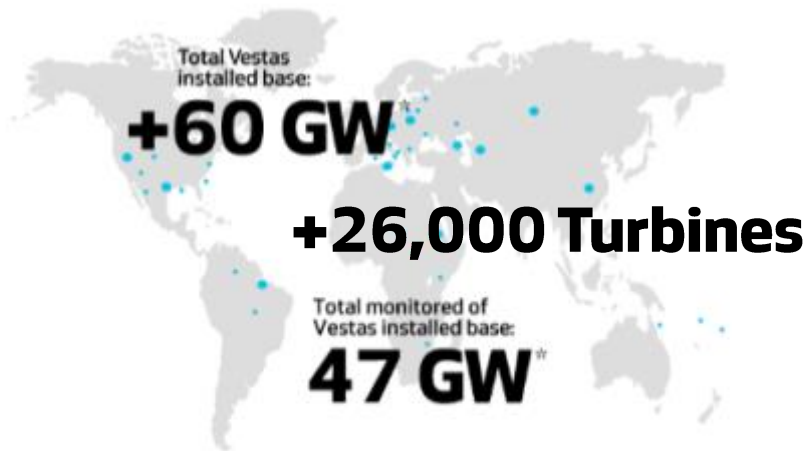




Merging of HPC and Big Data at Vestas Wind Systems

Anders Rhod Gregersen, Chief Specialist
Vestas Wind Systems A/S

Vestas Wind Systems A/S



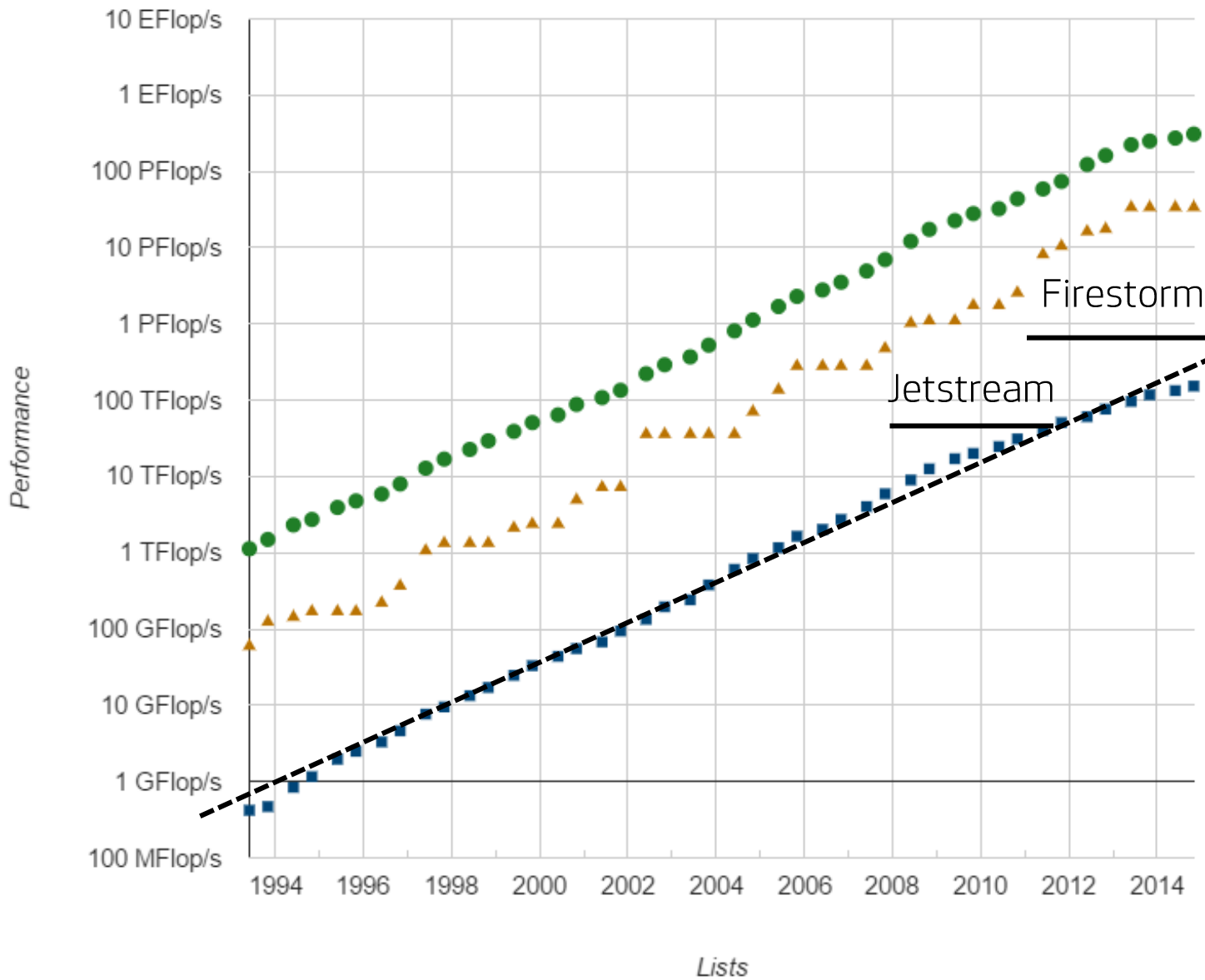
Vestas Installed base:
+60 GW[™]

Worldwide installed wind capacity:
+318 GW[™]

*Vestas Performance & Diagnostics Centre, 31/12/13
**Global Wind Statistics 2013 (Year-end), GWEC



Performance Development



Sum #1 #500

Building up HPC capability

Q1/2003

First commercial license for CFD

Q4/2006

First cluster (40 cores)

Q3/2007

CFD model validated.

Q4/2008

Second cluster (15 TFLOPS, Tera-scale data system)

Q2/2011

Third cluster

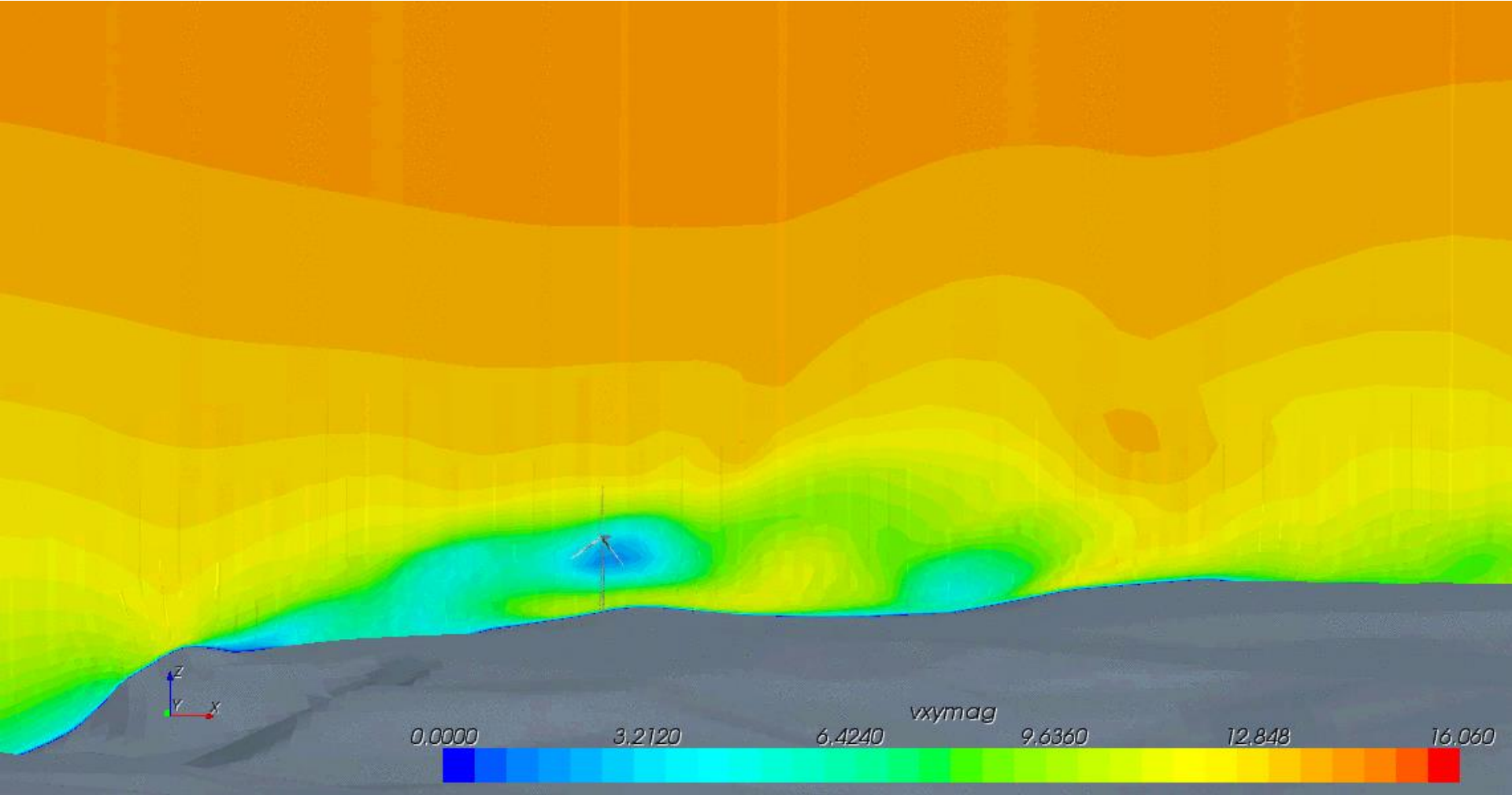
(3rd largest industrial HPC, Peta-scale data system)

Q4/2015

Fourth cluster (business continuation and much more data)



Understanding turbulence through simulation

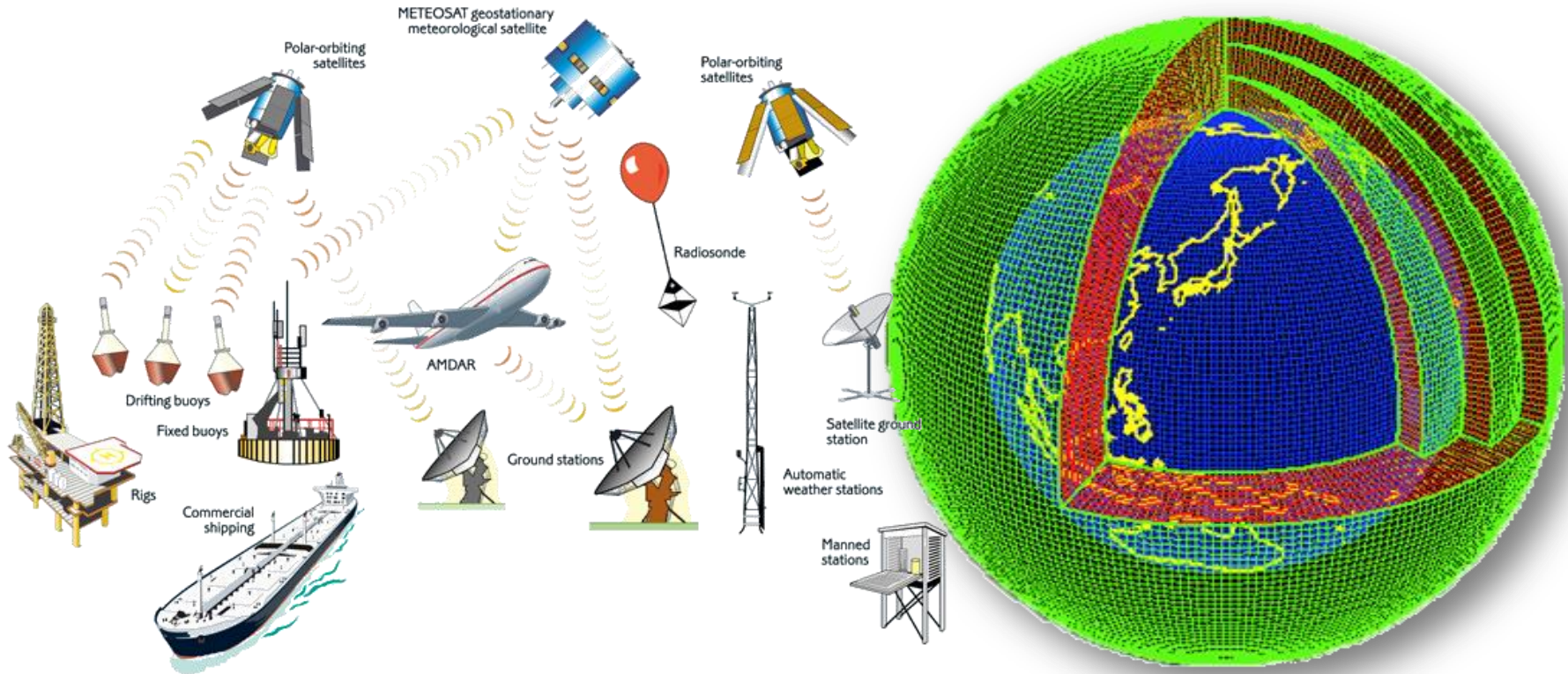


Understanding wind patterns through observation



Wind. It means the world to us.™

Understanding wind patterns through simulation & Big Data



Input from 35.000 met-stations every 6 hours from National Weather Centers in UK, US or Japan

Understanding operation through 50+ million sensors

Wind speed & direction

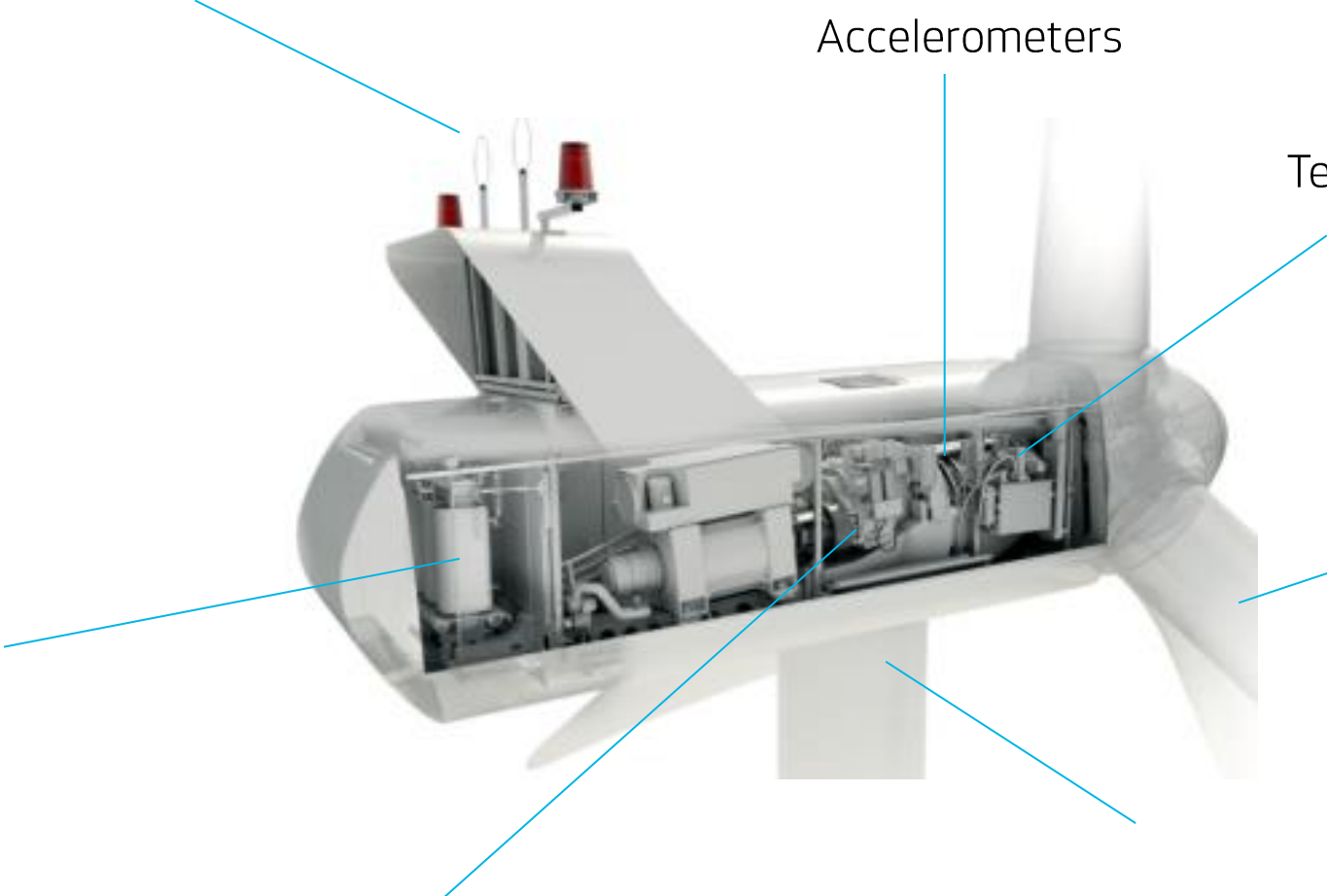
Accelerometers

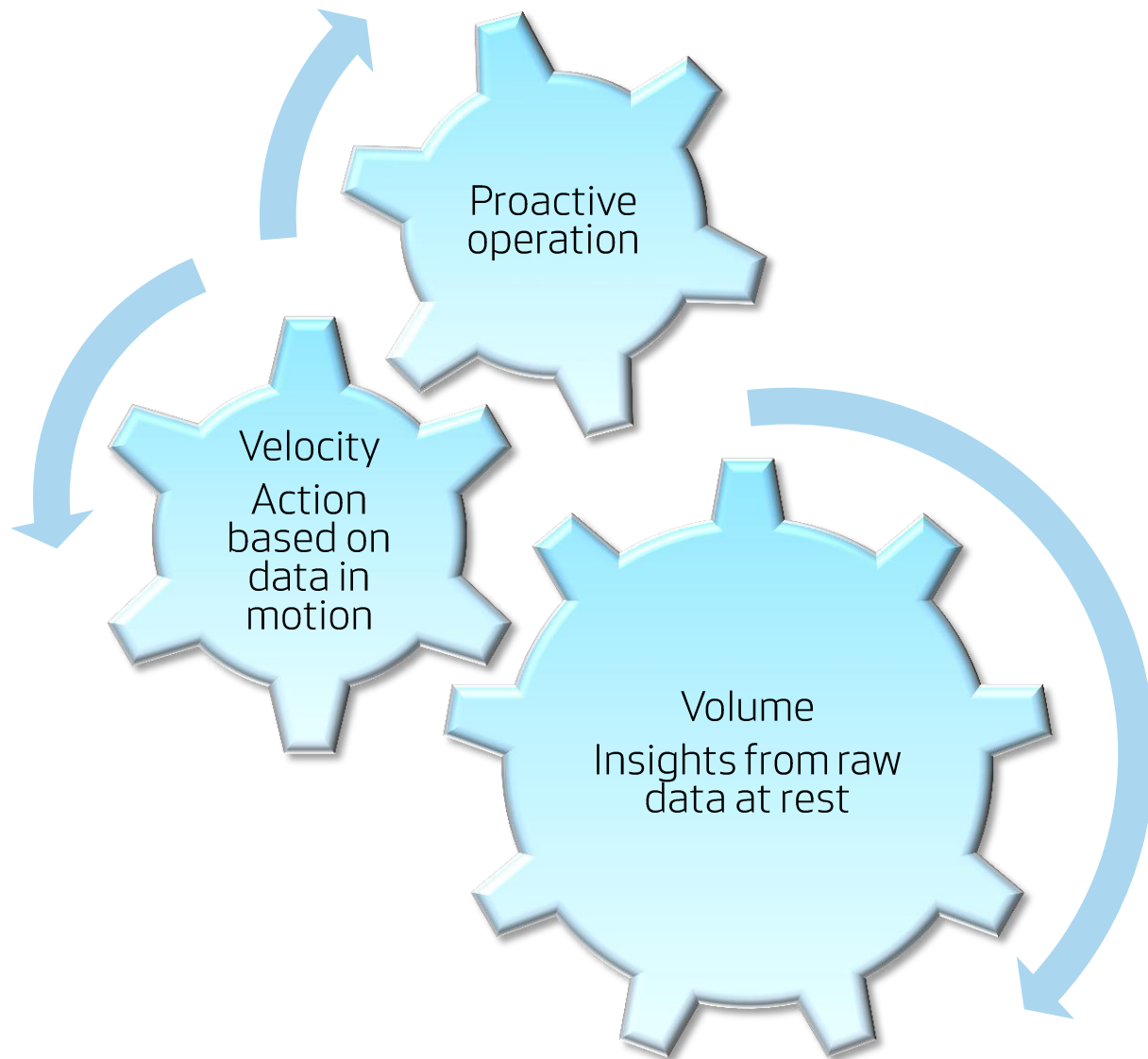
Temperatures

Pitch and loads

Transmission

Yaw system







<http://www.eunews.it/2014/04/11/onde-road/14271>

Empowering the company with simulation and data insight

HPC grew out of academia

What to expect from users?

Users range from PhDs

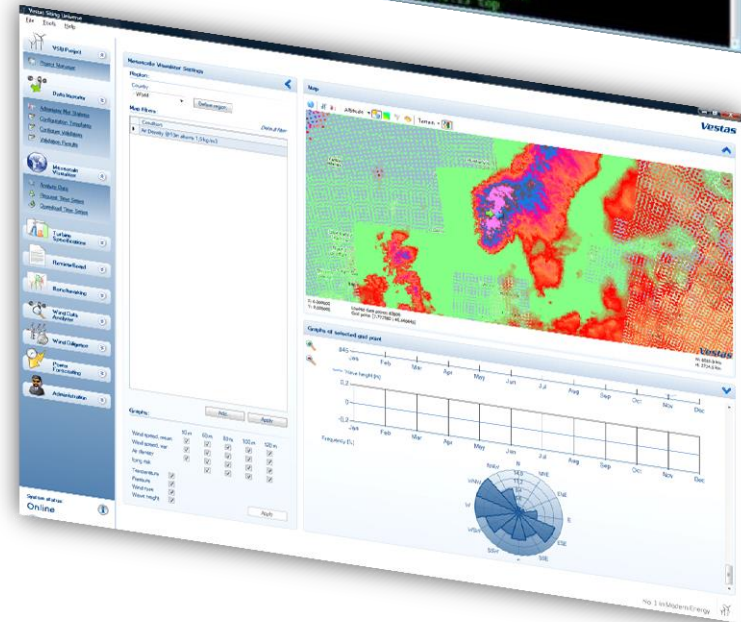
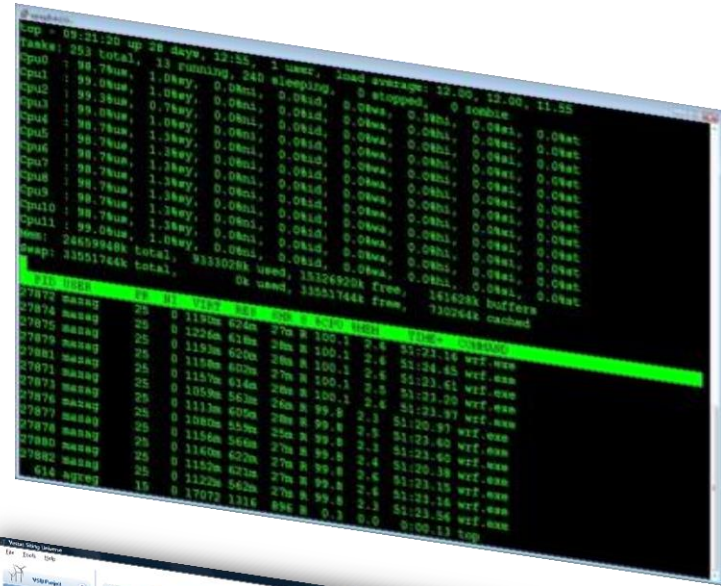
....to salesforce

One common tool for common users

....enables tracability

Point and click HPC for regular users

Terminal based interaction for the power user / data scientist



Accolades and recognition

2011 Information on Demand – Most Innovative award

2012 Computerwoche – Das beste Big Data-Projekt

2013 Exhibition opening case for Bundeskanzlerin Angela Merkel, CeBIT

2015 Deloitte's Big Data Award





Vestas[®]

Wind. It means the world to us.[™]

**Thank you for
your attention.**

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