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Web-based remote sensing of building energy performance Matlab models as web services

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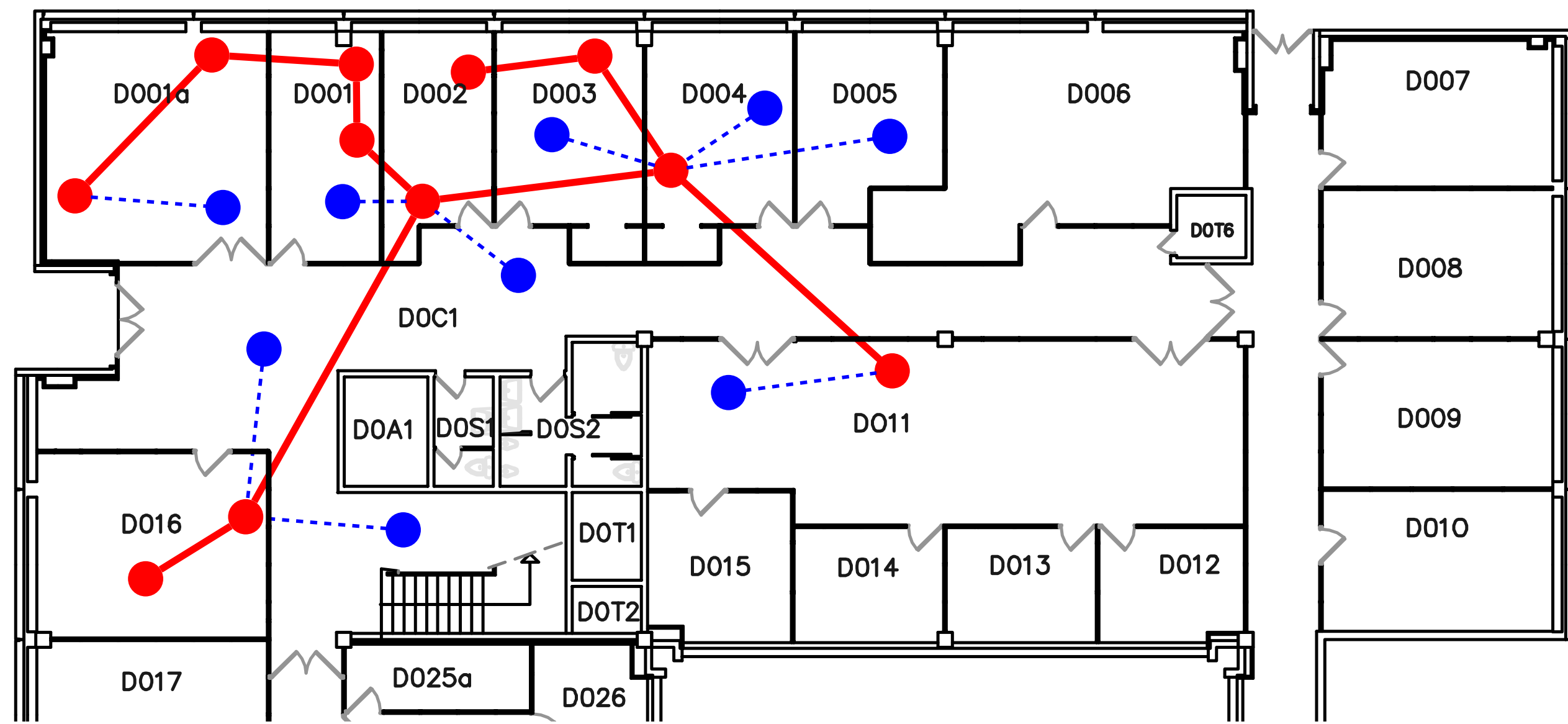


Web-based remote sensing of building energy performance

Smart sensors networks

Smart sensors use a **6LoWPAN** stack. Best of IP connectivity with very low power consumption. The network is built itself with **IPv6** Autoconfiguration mode. The application protocol of smart sensors is inspired of **Zigbee** clusters.

Building map (studied building)



- Smart plug
- Autonomous Sensors
- Static route
- Dynamic route

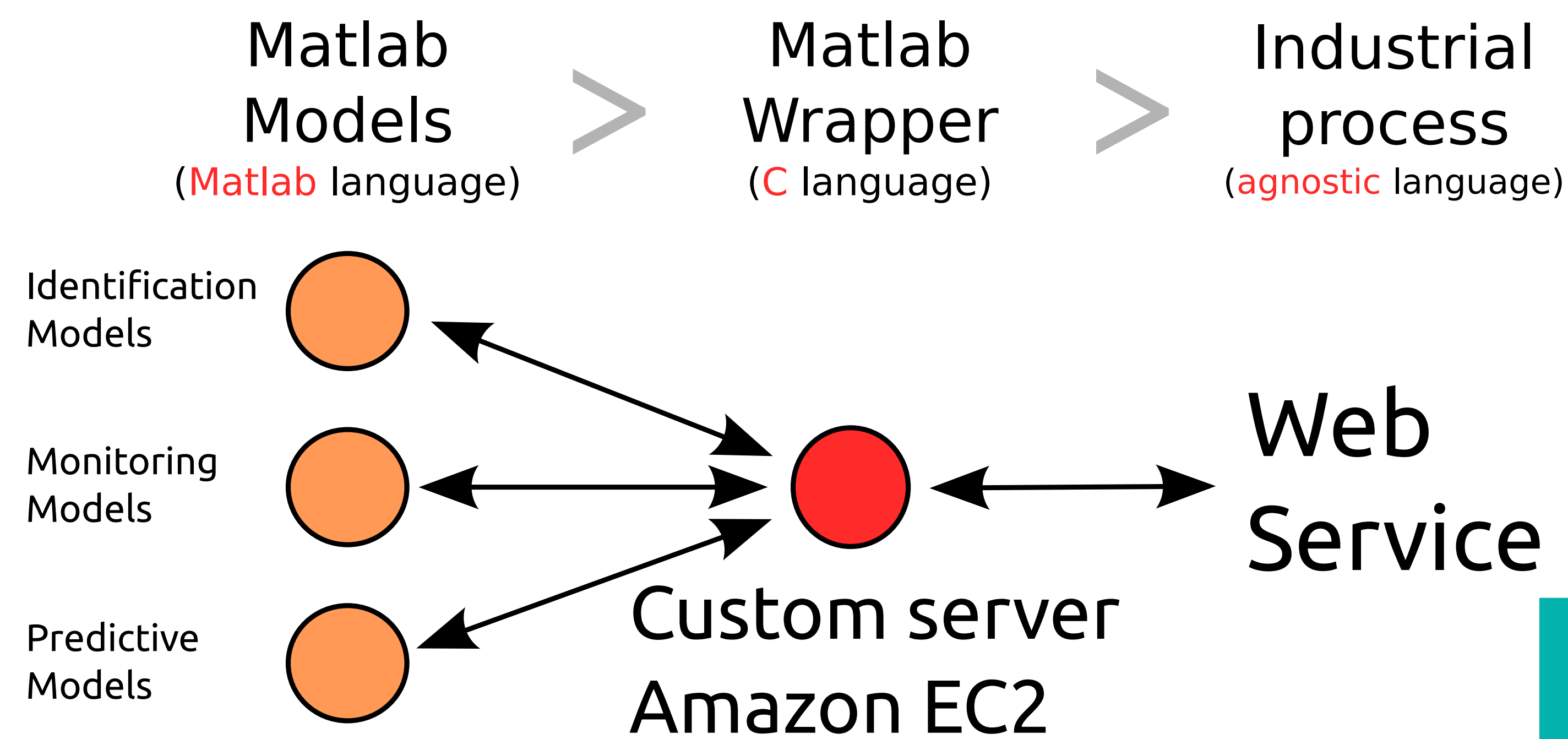


Autonomous sensors (Air temperature)



Matlab models as web services

MatlabWrapper tool accelerates the development process of scientists models to industrial solutions. **No rewrite needed!**



External Web Services

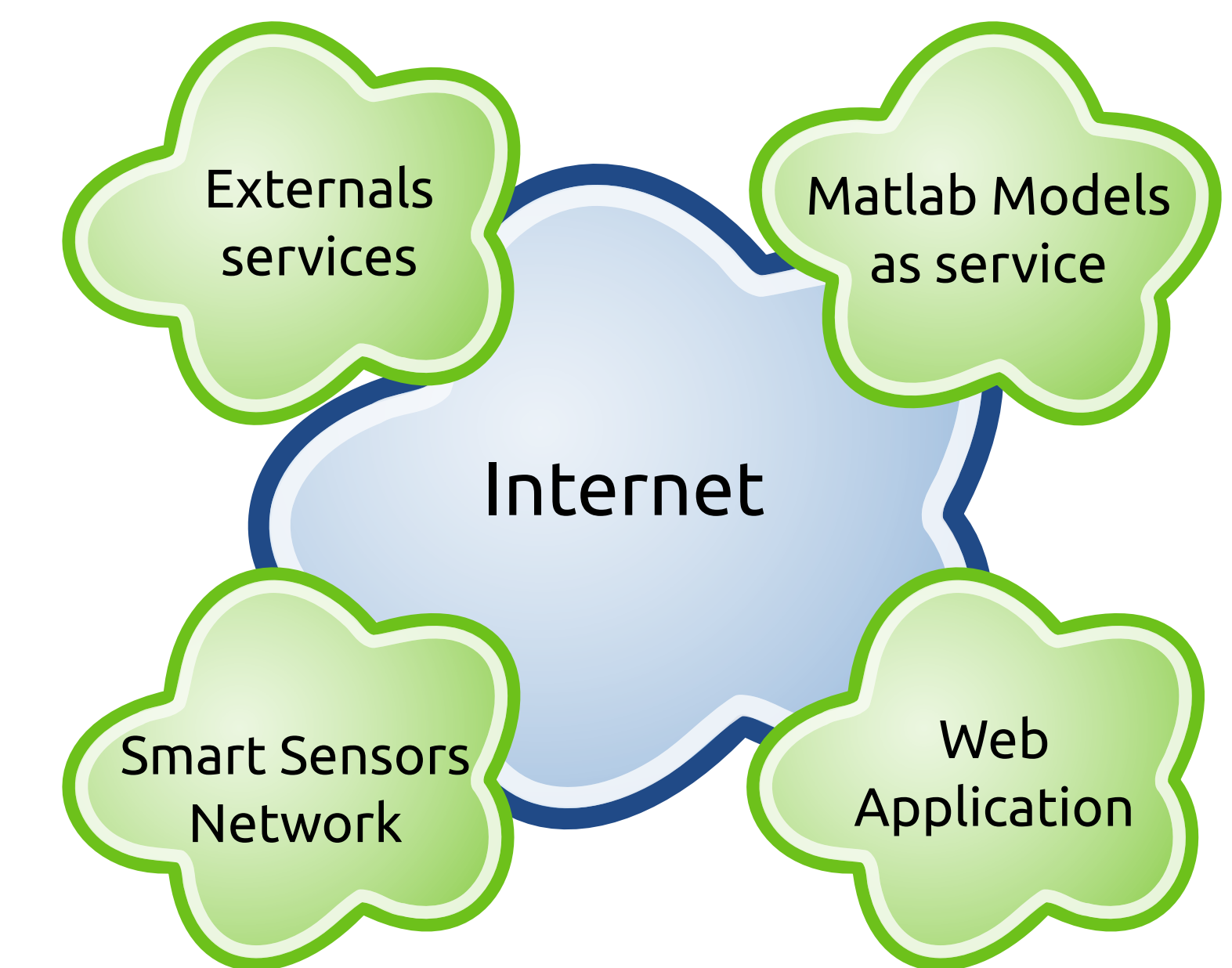
The Web application reads external services to increase data sources:

- METAR**, weather observation at your local Airport, no forecast, *Free*
- Météo-France**, weather observation and forecast of the studied city, *Paying*

Web Application

The Web application stores data from smart sensors network and external services. These data are used into matlab models to perform **thermal prediction** of the studied building.

Users can access to realtime sensors status, data volume per sensor, a unified export view, and configuration tools.



Web application architecture

FOSS Software:
Debian, PHP, ØMQ, Mongrel2, MongoDB
HTTP, FTP, JSON