

Automated On-Line IAQ Reporting System

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Agenda

- The Problem
- Background
- The Design Criteria
- The Automated IAQ Software
- Parts of the System
- Data Collection Continuum
- Database
- Rule set
- Reports
- Benefits

The Problem

- There are lots of instruments to measure the components of air
- One can easily and accurately measure these components
- The ***real problem*** is understanding what these measurements mean
- The ***automated analysis*** of appropriate air measurements is the problem we have addressed

Background

- We investigated proven IAQ measuring & analysis techniques and systems
- We analyzed the IAQ systems to see what could be automated
- We partnered with a leading IAQ consulting firm and developed the

IAQ Software System

Design Criteria

- Measurements and observations to be maintained in a database
- Fast report generation
- Historical measurement/observation database
- Reports on demand (on-line)
- Integration of energy management programs
- Access to data and reports via the Internet

The Automated IAQ System

- Measurements and observations are made
- The information is stored in a *database*
- An **inference engine** is supplied with the appropriate "*rule set*"
- The information from the database is analyzed by the "*engine*"
- A report is generated



Measurements &
observations taken



Measurements &
observations taken

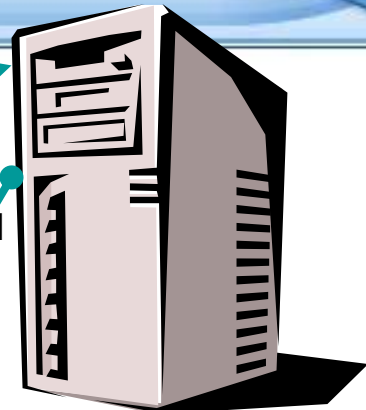
Data sent to central
server database





Measurements & observations taken

Data sent to central server database



Data extracted for the building





Measurements & observations taken

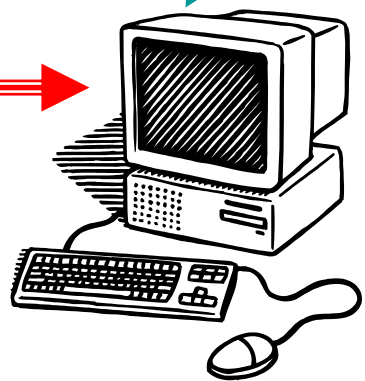
Data sent to central server database

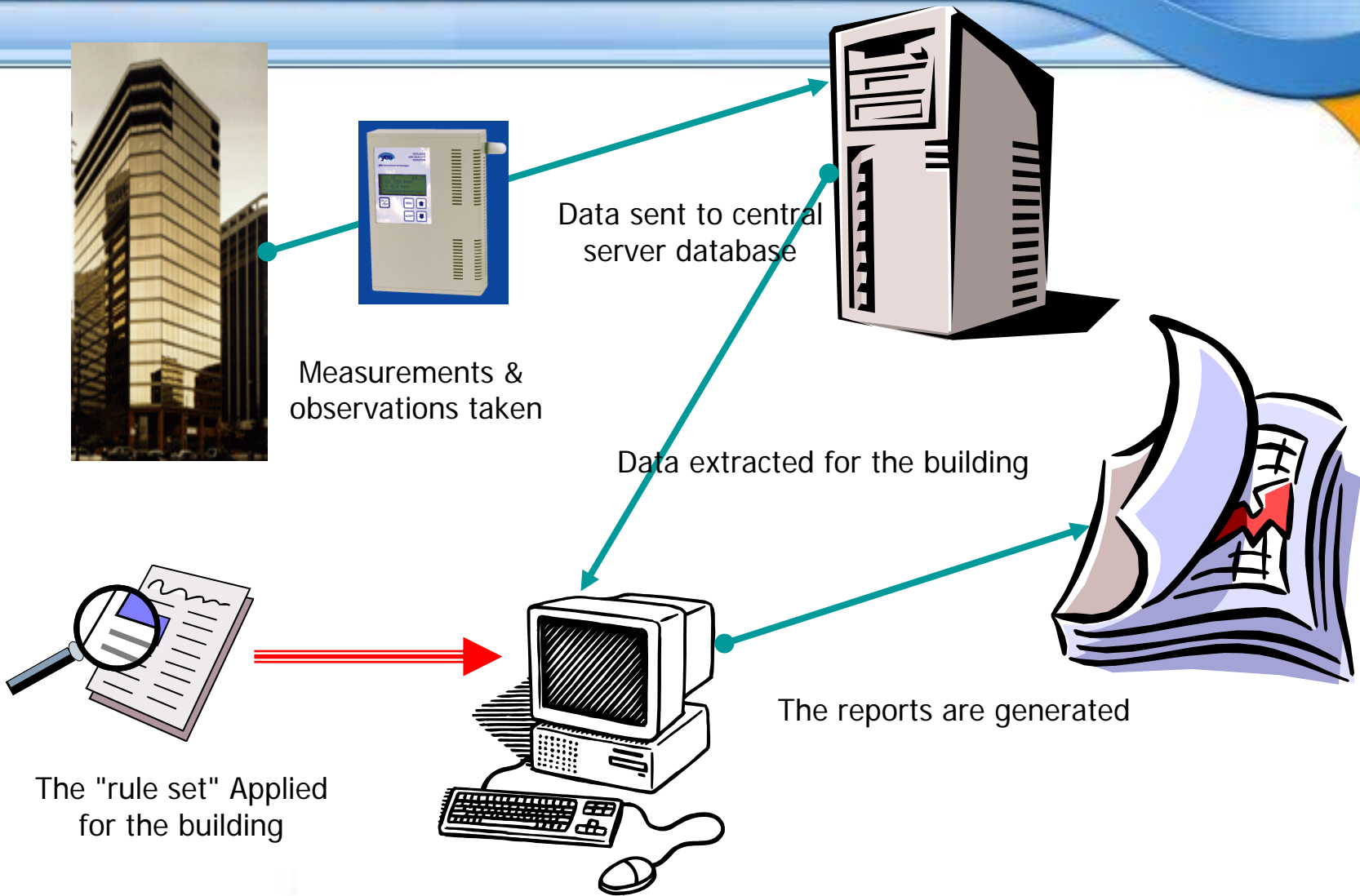


Data extracted for the building



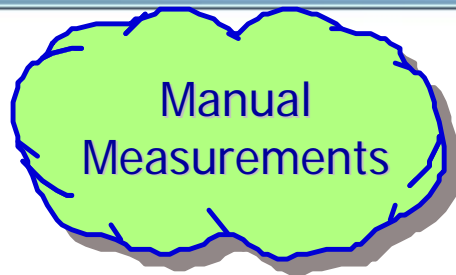
The "rule set" Applied for the building



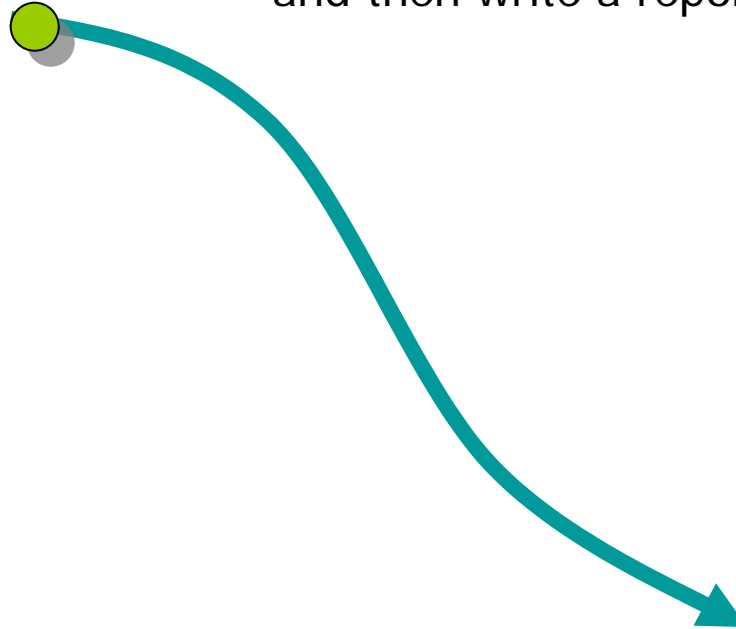


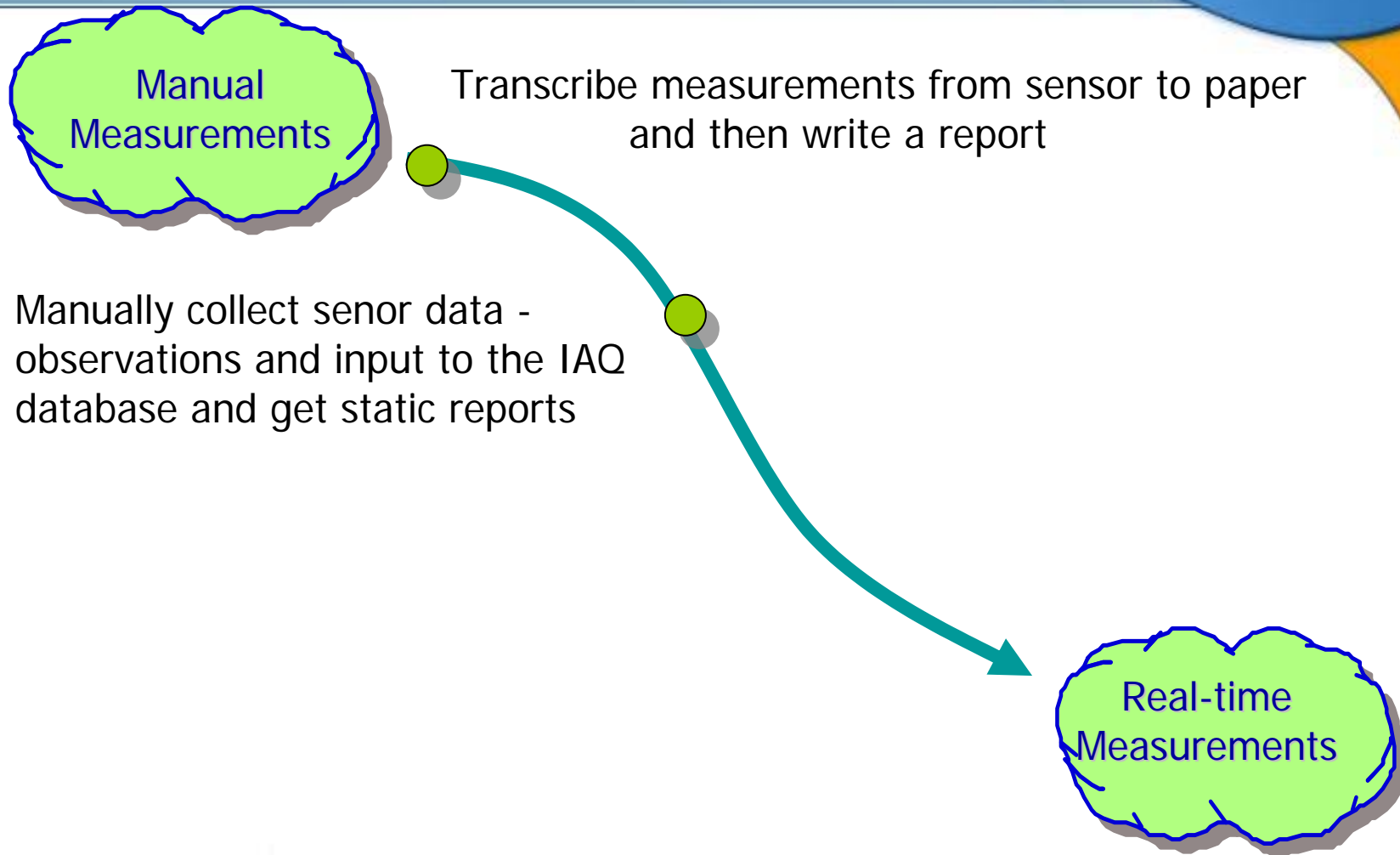
Parts of the System

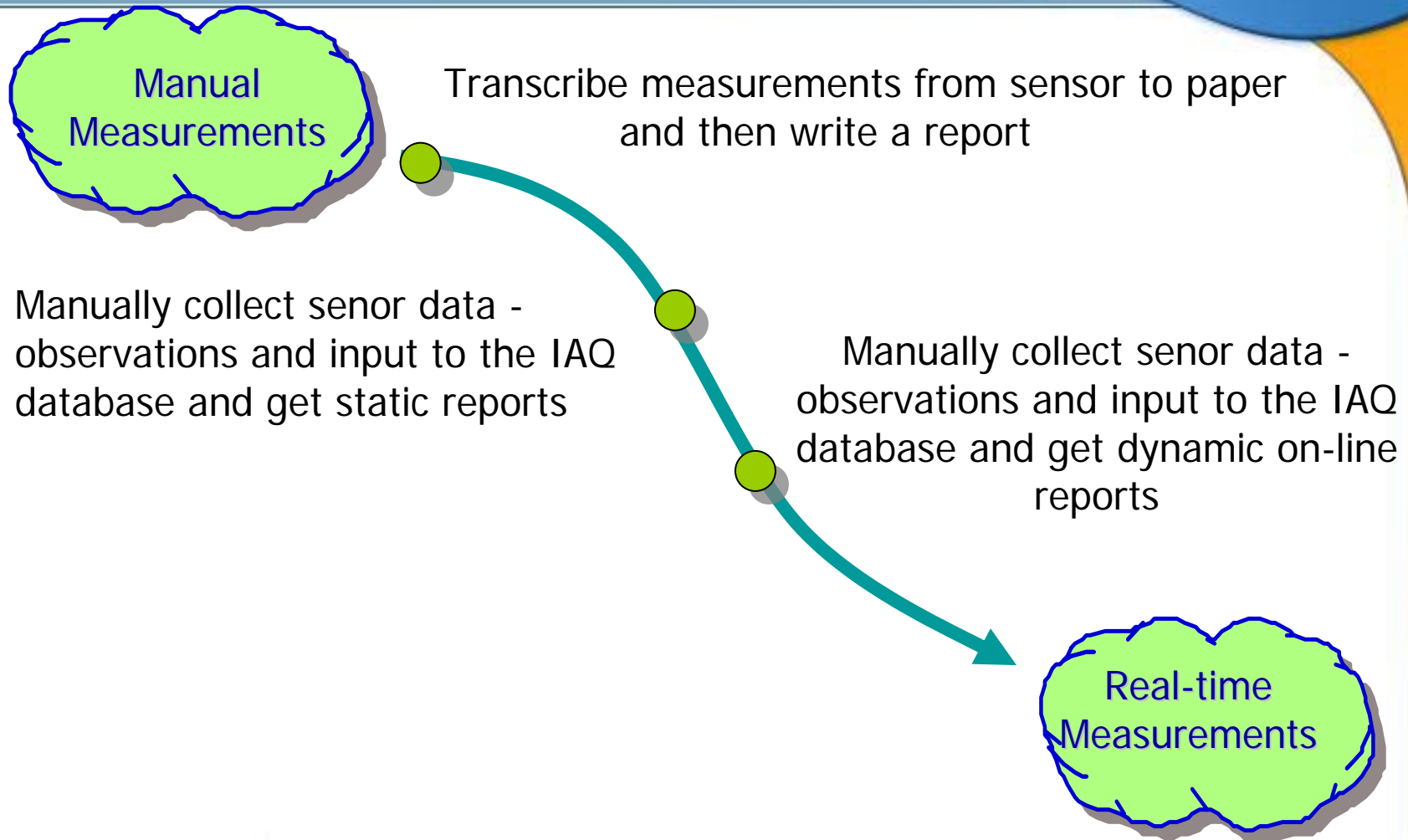
- Measurements are taken using the appropriate sensor technologies
- Observations are made and pictures/drawings are taken where necessary
- The database contains all the recorded data
- The “inference engine”, using the rule set then reads the database and applies the rules
- The findings and conclusions are generated on-line-printed report/on-line alarm system

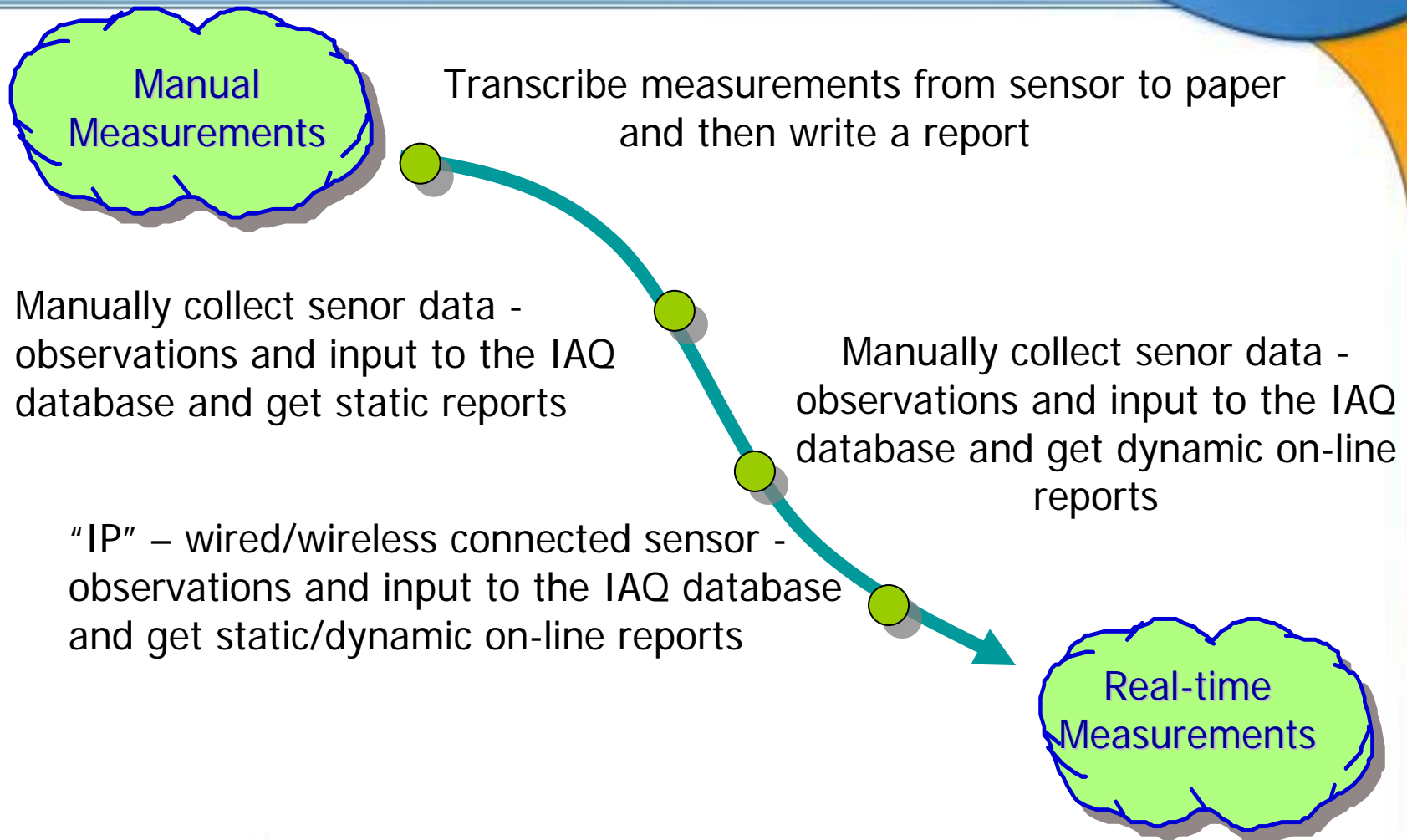


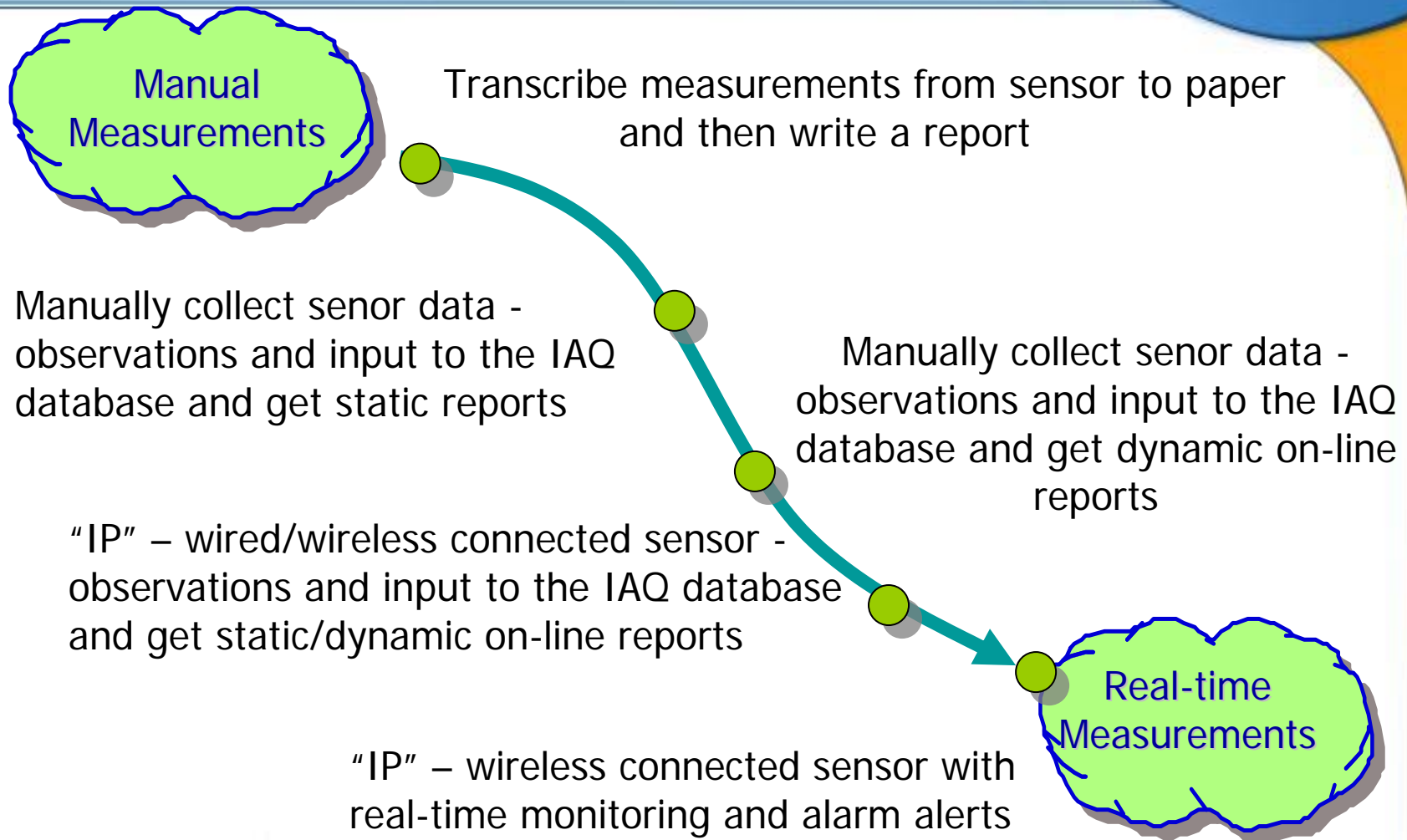
Transcribe measurements from sensor to paper
and then write a report











The Database

Maintains data files:

- Buildings
- Jobs
- Measurements
- Observations (pictures, etc.)

The “Rule Set”

- The Heart of the system
- The “rules” are continually updated
 - New regulations
 - Scientific – industry reports
 - Conclusions
 - Techniques
- Regional differences
- Indoor/outdoor variances
- Report styles

The Reports

- The reports are ***static***:
 - Printed and/or
 - On-line (web based)
- The system can be on-line, real-time activated then the reports are ***dynamic***:
 - Dynamic (web based)
 - With e-mail/cell phone alerts
 - And the data can be fed into a demand control ventilation (DCV) system model

Key Benefits

- *Customization* of the system for client needs
- *Historical – comparison* IAQ database
- Report *depth* (on-line hypertext)
- *Standardized benchmarking* system of IAQ checking across the region
- Ability to *integrate* various energy management models

Thank You