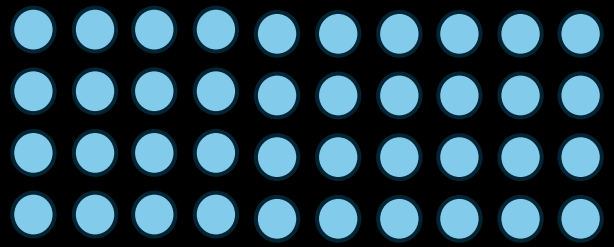
ByteWorx

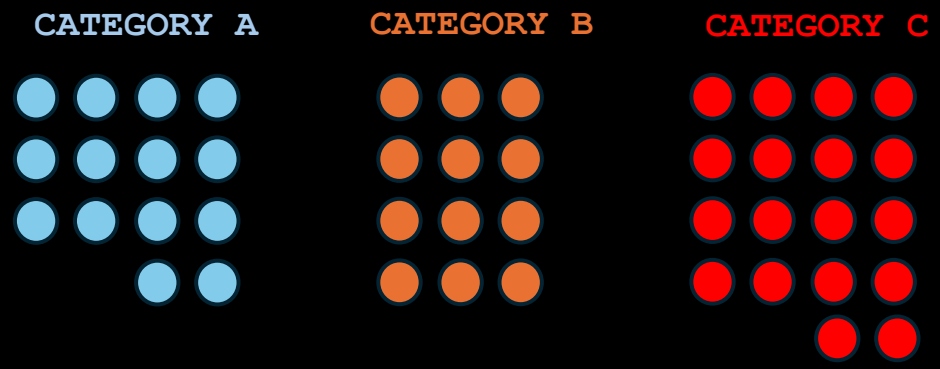
STRUCTURAL DISCOVERY FOR COMPLEX DATA

MOST AI/ML TODAY

HOW AI VIEWS DATA



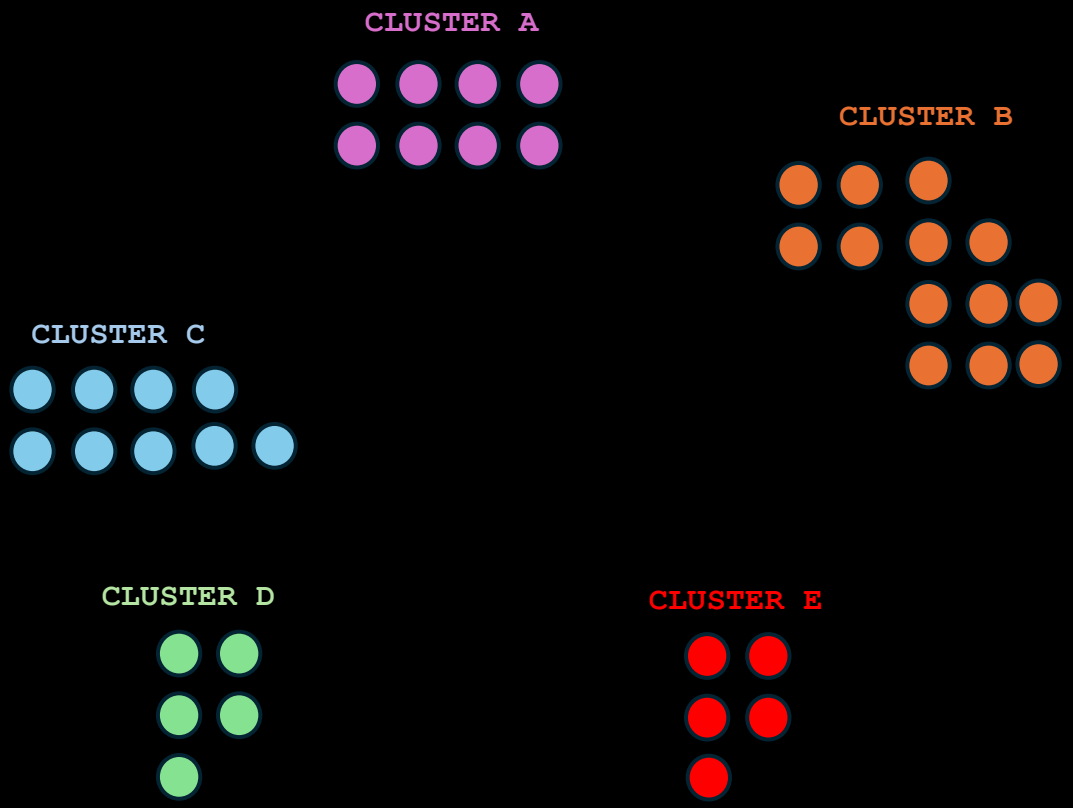
TRAINED LABELS



Explanation:
Most AI systems treat data as individual points and try to predict human labels or expected outcomes.

ByteWorx

CURRENT ADVANCED CLUSTERING

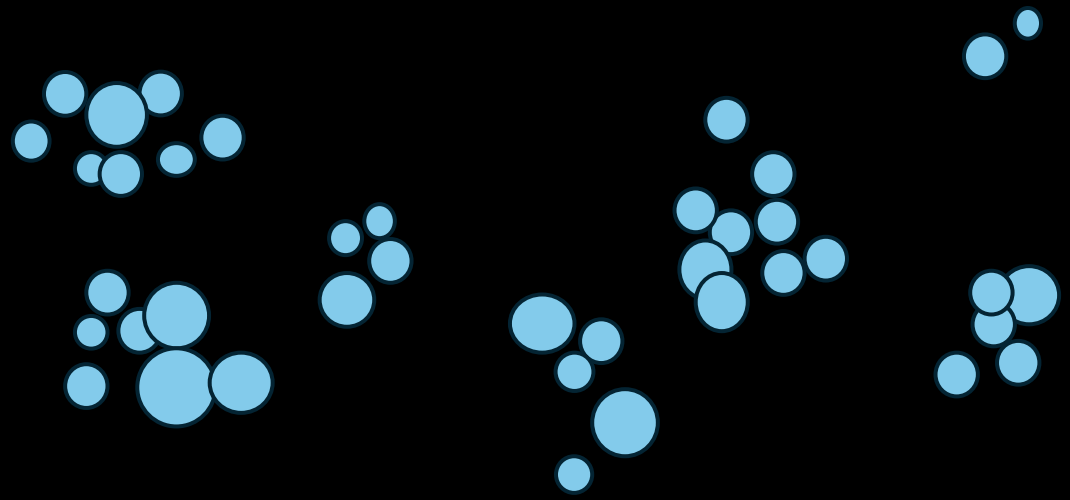


Explanation:
Clustering finds groups, but not the relationships between them.

ByteWorx

HOW DATA ACTUALLY ORGANIZES

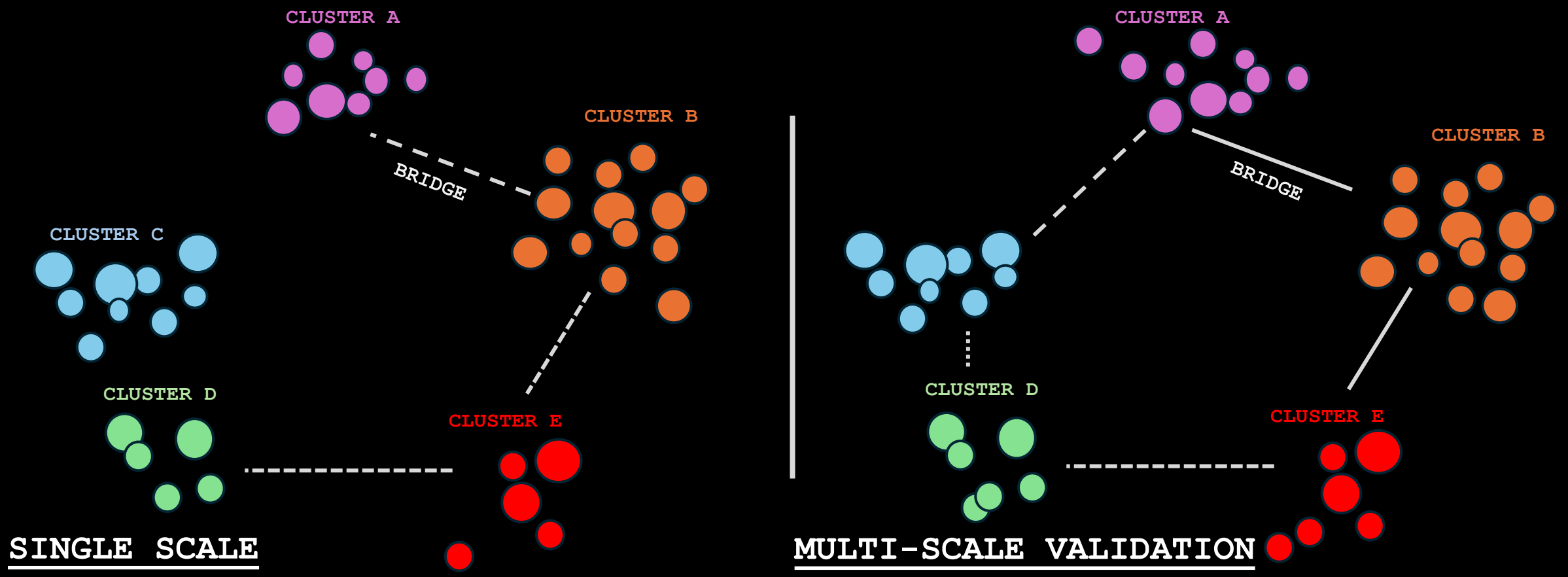
WHAT THE DATA ACTUALLY LOOKS LIKE



Explanation:
In real systems, data organizes itself into **regions or regimes**.

ByteWorx

BYTE MAPS STRUCTURE & TRANSITIONS



Explanation:

If you understand the structure of a system, prediction becomes easy.
But prediction alone rarely reveals the structure.

ByteWorx

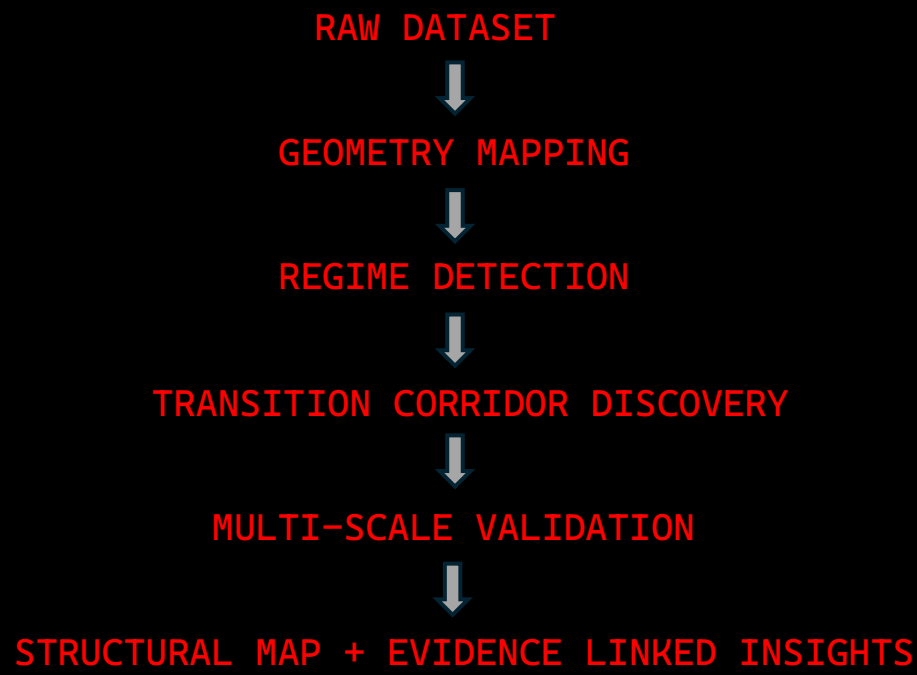
WHAT IS BYTE

Byte is a physics-based structural discovery engine designed to reveal how complex datasets organize themselves.

Unlike conventional AI systems that focus on predicting labels or outcomes, Byte analyzes the geometry of information to identify regimes, transitions, and persistent relationships within data.

Byte converts raw datasets into a structural map by detecting regimes, identifying transitions between them, and validating the resulting topology across multiple analysis scales.

BYTE WORKFLOW



ByteWorx

CROSS-DOMAIN DISCOVERY WITHOUT DOMAIN TRAINING

Capability	Traditional ML	Domain AI Models	Scientific Clustering	Byte
Requires labeled training data	✓	✓	✗	✗
Domain-specific training	✓	✓	Often	✗
Predicts outcomes	✓	✓	✗	Secondary
Identifies clusters	Limited	Limited	✓	✓
Detects relationships between clusters	✗	Rare	✗	✓
Multi-scale structure validation	✗	Rare	Rare	✓
Cross-domain capability	Limited	✗	Limited	✓
Evidence-linked interpretation	Limited	Limited	Limited	✓

Recent Domains Analyzed

- Gene expression networks
- Gravitational wave signals
- Protein mutation datasets
- Superconductivity materials
- Parkinson's telemonitoring data

Most AI systems are optimized for prediction within a specific domain.

Byte analyzes the geometry of data itself, allowing the same engine to operate across many domains.

ByteWorx

ENGAGEMENT MODEL

Step 1 — Free Structural Scan
Initial dataset evaluation

- Client provides a limited dataset
- Byte performs a structural discovery run
- Output includes a structural map and summary insights

Step 2 — Collaborative Discovery
If the initial scan reveals valuable structure:

- Deeper structural analysis of the dataset
- Iterative runs and parameter exploration
- Collaboration with domain experts to interpret findings

Step 3 — Ongoing Structural Analysis
For datasets where structural discovery proves useful:

- Repeated dataset analysis
- Monitoring structural changes over time
- Discovery support for research or operational systems

TYPICAL PARTNER WORKFLOW

PROVIDE DATASET

⬇

RECEIVE STRUCTURAL DISCOVERY REPORT

⬇

REVIEW FINDINGS TOGETHER

⬇

DECIDE WHETHER DEEPER ANALYSIS IS WORTHWHILE

Purpose:
Translate structural discovery into practical research or operational insights

ByteWorx