Living in Complex Systems

Rule 1: Embrace Plurality

Getting SKUd

What is a Stock Keeping Unit (SKU)?

- Can be sold
- Must be shipped
- Takes up shelf space
- Has a price & cost
- One SKU exists per “kind of thing” that can be sold
- Does not track the individual inventory item

Digital Downloads

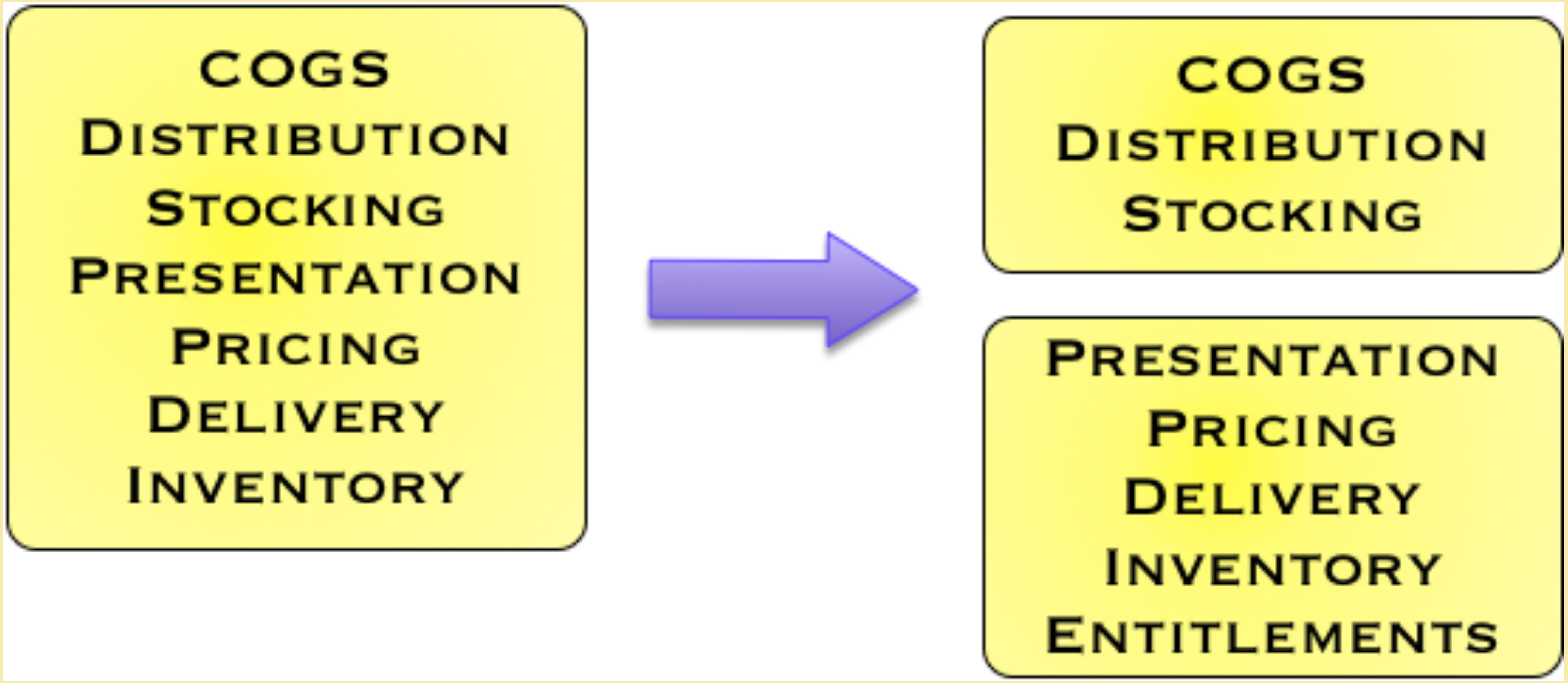
- Added: tracking individual purchase
- Irrelevant: Shelf space, shipping, fixed cost

Partner Sales

- Added: Multiple prices per item
- Irrelevant: Controlled ID space

Home Installation and Renovation

— Added: 16,000,000 new SKUs


COGS
Distribution
Stocking
Presentation
Pricing
Delivery
Inventory
COGS
Distribution
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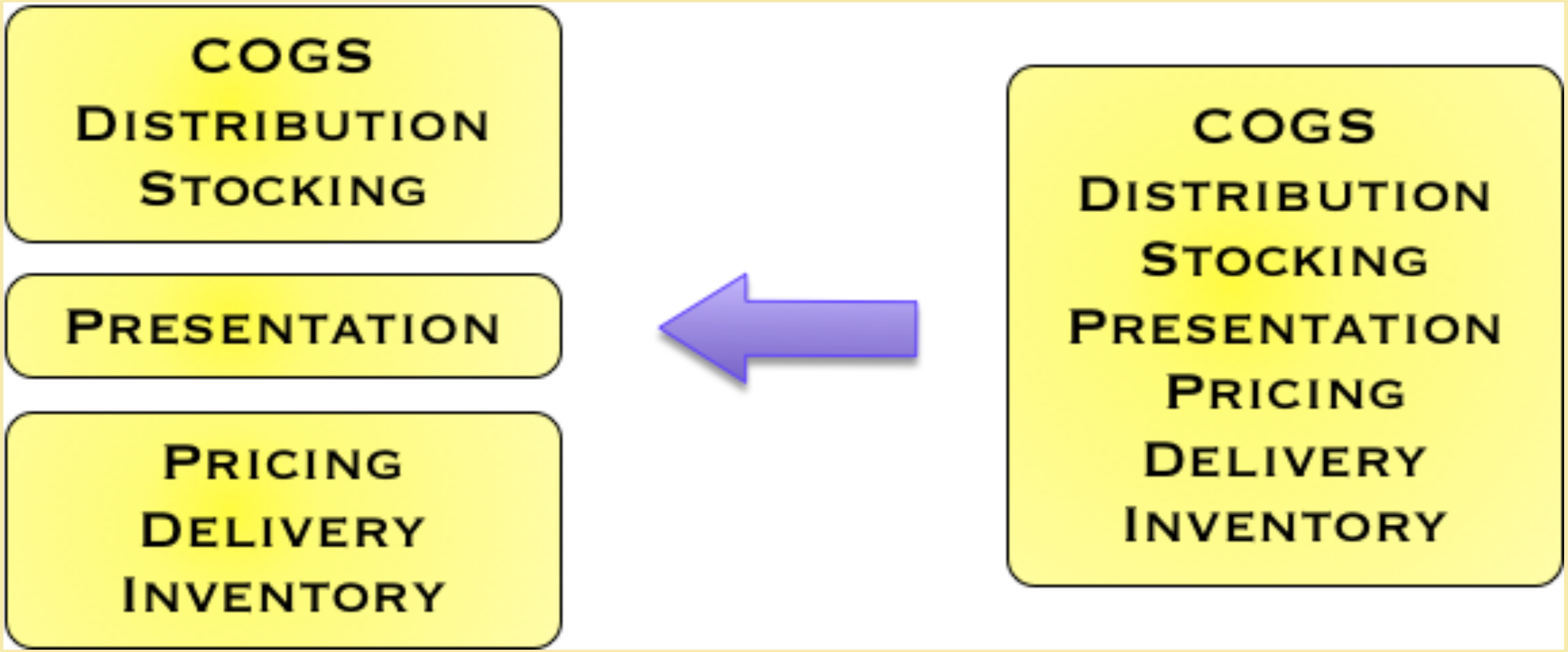
Pricing
Delivery
Inventory
Entitlements


COGS
Distribution
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COGS
Distribution
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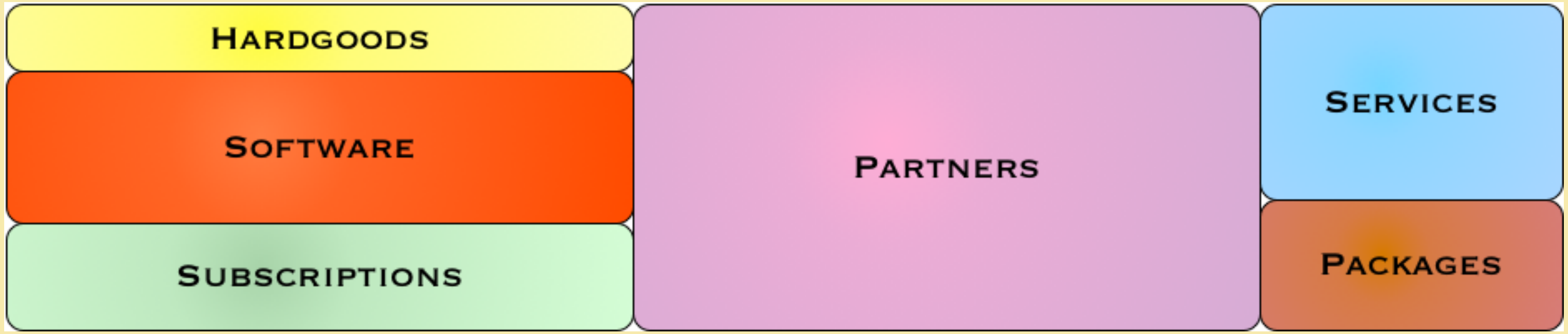
Presentation
Pricing
Delivery
Inventory

Dark Matter

Federated


HARDGOODS
SOFTWARE
SUBSCRIPTIONS
PARTNERS
SERVICES
PACKAGES

Rule 2: Augment Upstream, Contextualize Downstream

Augment Upstream

- Add to data as "early" as possible
- Avoid creating privileged downstreams
- Everybody wants the best data available
  <!--

Work Time

Bundles

- Package of multiple goods or services
- Defined by a vendor, limited to that vendor
- Has it's own presentation and pricing -->

Contextualize Downstream

— Things closer to users and APIs change more frequently
  — Presentation
  — Policies
  — Limits and ranges
    <!--

Work Time

Vendor CSRs

Vendor CSRs

Must be able to:

- View a customer's current subscriptions
- View a customer's complete history
  - Sub, re-sub, upgrade, downgrade.
  - Reminders, payment methods, expirations
  - Email bounces
  - Past CSR interactions and notes
- Upgrade, downgrade, or cancel a sub
- Force re-delivery of item
- Add notes to the customer's file

Must *not* be able to:

- See the customer's interaction with other vendors
- See products, items, prices, etc from other vendors
- Alter the delivery address of other subscriptions that customer has
- See payment methods the customer has used with other vendors but not this one -->

Rule 3: Decentralize

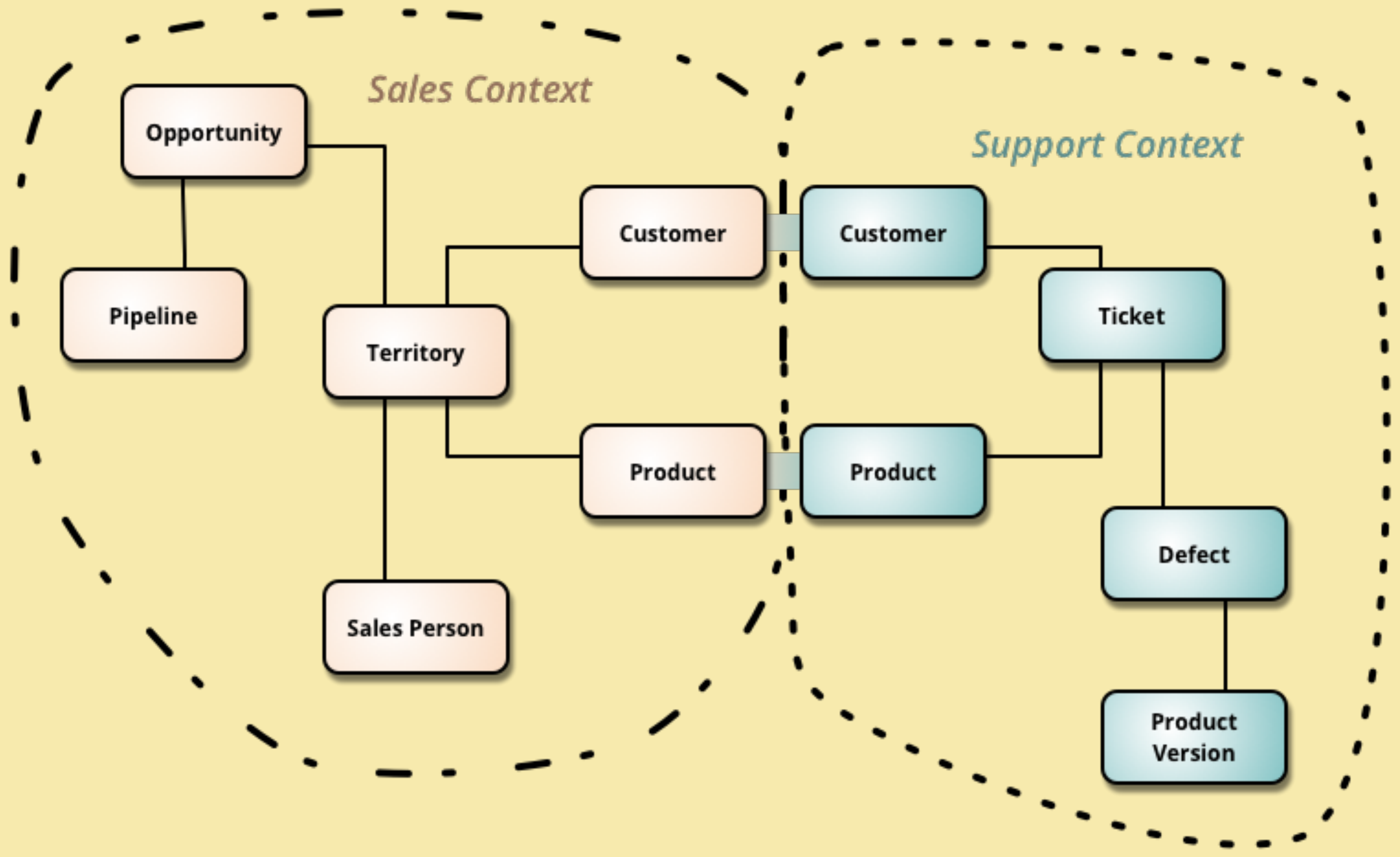
Rule 4: Beware Grandiosity

- Enterprise Data Dictionary
- Global Object Model
- "One World" Model

Bounded Context

The antidote to grandiosity.

Bounded Contexts and Anticorruption Layers



Rule 5: Isolate Failure Domains

- Mail handler blocks forever.
- CCVS sometimes rejects requests.
- WMS drops connections.

Activation Sets

- Every service that participates in a call graph
- Services appearing in many activation sets must change less, be more available.

Failure Domain

- The "shadow" of a service.
- Every call type with that service in it's activation set.

Isolating Failure Domains

1. Convert hard dependencies into weak
    1. Internal cache
    2. Secondary service
    3. Default or fallback value
2. Add replicas
3. Cleave nouns along their adjectives

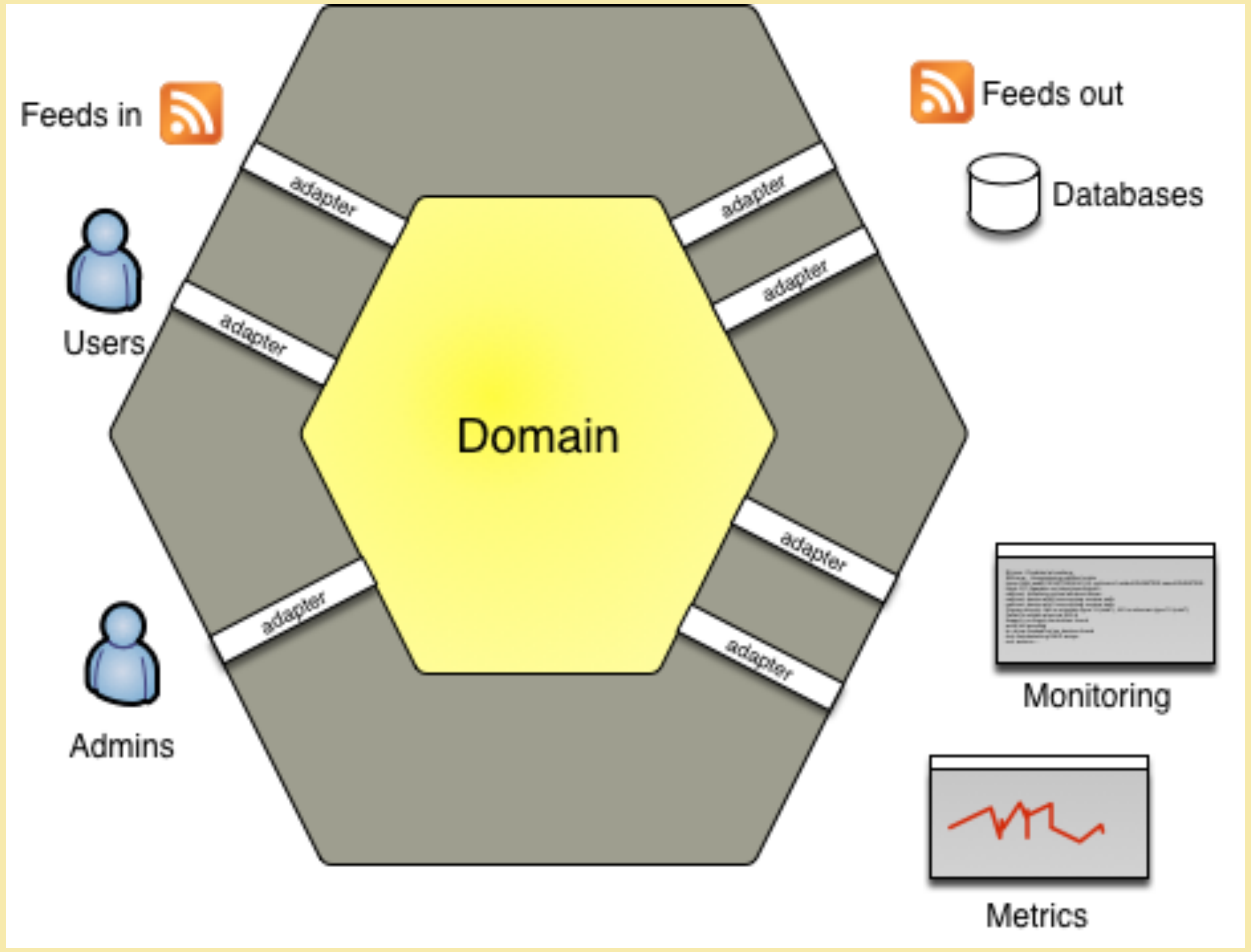
Rule 6: Data Outlives Applications

- ISAM
- VSAM
- Network
- Hierarchic
- Relational
- Graph
- KVS
- Document

Rule 7: Applications Outlive Integrations

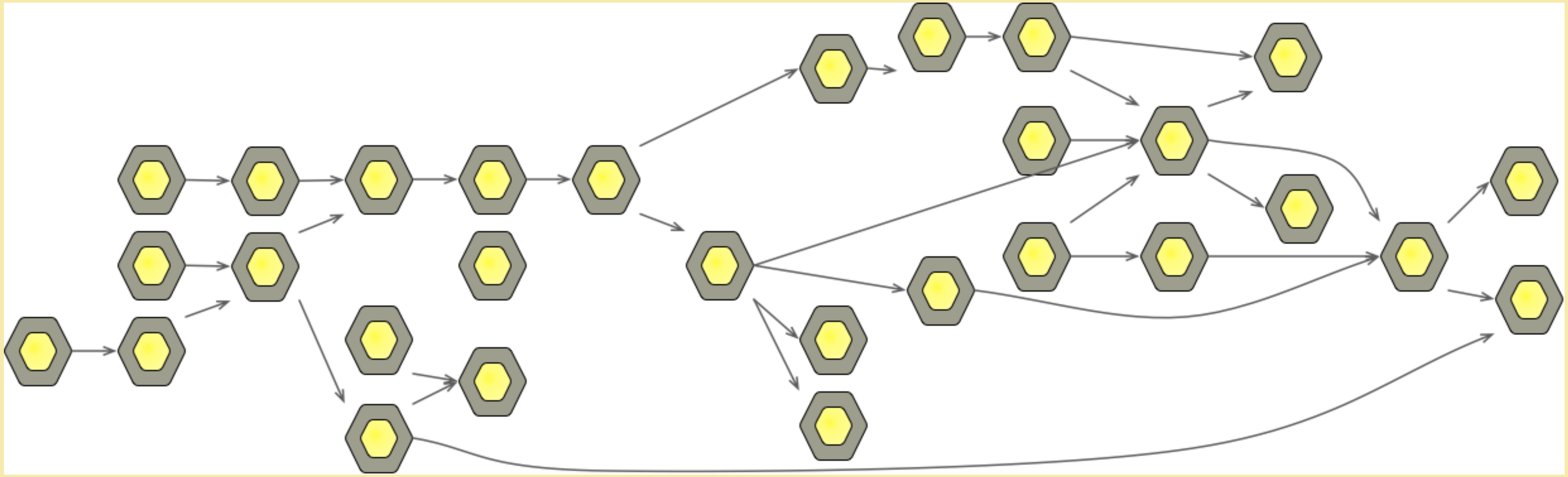
- CICS
- FTP
- RPC
- Sockets
- RPC
- CD-ROM
- XML-HTTP
- RPC
- ESB

Hexagonal Architecture



A.k.a. Ports and Adapters

Honeycomb



Rule 8: Increase Discoverability

The Eight Rules

1. Embrace Plurality
2. Augment Upstream; Contextualize Downstream
3. Beware Grandiosity
4. Decentralize
5. Isolate Failure Domains
6. Data Outlives Applications
7. Applications Outlive Integrations
8. Increase Discoverability

THANK YOU!