Agenda

1. Inventory transactions as we know them
2. Introducing warehouse-specific transactions
3. Demo
4. Performance
5. Breaking changes
6. Release schedule

InventTrans

Common abstraction over inventory changes.

Data used for:
- ✓ reservations,
- ✓ on-hand quantities,
- ✓ inventory value calculations

Created	Quantity	Item	Location
12:15	+3	cake	warehouse_51
12:20	-2	lollipop	warehouse_24
13:30	-1	chocolate bar	shelf_7
13:30	+1	chocolate bar	staging

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InventTransOrigin

Common abstraction over originator of the inventory changes.

Reference category examples:
- Sales
- Production
- Purchase
- Inventory counting
- WHS Work
- WHS Container

InventTrans

Created	Quantity	Item	Location
12:15	+3	cake	warehouse_51
12:20	-2	lollipop	warehouse_24
13:30	-1	chocolate bar	shelf_7
13:30	+1	chocolate bar	staging

InventTransOrigin

Reference category	Reference id
Transfer Order	TO-006
Sales Order	SO-113
Work	W-402
Work	W-111

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Inventory Transactions example*

1. **Create SO for 2 items.**
2. **Pick 2 items.**
3. **Put away 2 items to baydoor.**

* very simple example

Created	Quantity	Item	Location	Reference category	Reference id
12:15	-2	headphones	warehouse_51	Sales Order	SO-065

Inventory Transactions example

1. Create SO for 2 items.
2. Pick 2 items.
3. Put away 2 items to baydoor.

Created	Quantity	Item	location	Reference category	Reference id
13:00	-2	headphones	warehouse_51	Sales Order	SO-065
14:14	-2	headphones	shelf_3	Work	W-115
14:14	+2	headphones	user	Work	W-115

Inventory Transactions example

1. Create SO for 2 items.
2. Pick 2 items.
3. **Put away 2 items to baydoor.**

| Created	Quantity	Item	location	Reference category	Reference id
13:00	-2	headphones	warehouse_51	Sales Order	SO-065
14:14	-2	headphones	shelf_3	Work	W-115
14:14	+2	headphones	user	Work	W-115
14:16	-2	headphones	user	Work	W-115
14:16	+2	headphones	baydoor	Work	W-115

Inventory Transactions example

1. Create SO for 2 items with serial number.
2. Pick 2 items.
3. Put away 2 items to baydoor.

Created	Quantity	Item	Serial id	location	Reference category	Reference id
13:00	-2	headphones		warehouse_51	Sales Order	SO-006
14:14	-1	headphones	s1	shelf_3	Work	W-115
14:14	-1	headphones	s2	shelf_3	Work	W-115
14:14	+1	headphones	s1	user	Work	W-115
14:14	+1	headphones	s2	user	Work	W-115
14:16	-1	headphones	s1	user	Work	W-115
14:16	-1	headphones	s2	user	Work	W-115
14:16	+1	headphones	s1	baydoor	Work	W-115
14:16	+1	headphones	s2	baydoor	Work	W-115

Inventory Transactions example

created	quantity	Item	Serial	location	Reference category	Reference id
13:00						06
14:14						
14:14						
14:14						
14:14						
14:16						
14:16	-1	headphones	s2	user	Work	W-115
14:16	+1	headphones	s1	baydoor	Work	W-115
14:16	+1	headphones	s2	baydoor	Work	W-115

**not optimized
for tracking dimensions**

InventTrans - statuses and updates

✓ Multiple statuses

✓ Designed to follow sequence of states

✓ Support for financial updates
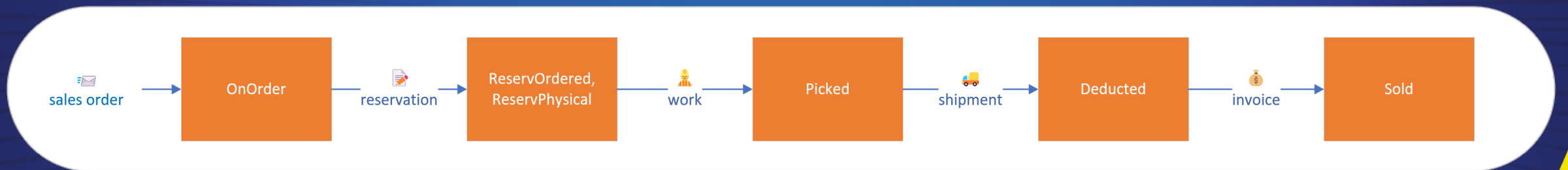
InventTrans - statuses and updates

- ✓ Multiple statuses
- ✓ Designed to follow sequence of states
- ✓ Support for financial updates

**not optimized
for warehouse processes**

Introducing
warehouse-specific
transactions

Warehouse transactions

- ✓ represent operations over a <u>set of items</u>
- ✓ insert-only
- ✓ no financial information
- ✓ less fields
- ✓ less DB indexes
- ✓ sequential guids
- ✓ efficient validation mechanism
- ✓ denormalized inventory dimensions and transaction originator

New data model

WHSInventoryTransaction

Transaction - change performed in the warehouse.

Keeps track of **storage dimensions.**

Created	Set id	Type	Location	Reference category	Reference id
12:15	17	Issue	shelf_7	Work	W-123
12:15	17	Receipt	user	Work	W-123

WHSInventoryItemSetElement

Inventory - object of the transaction.

Keeps track of **product and tracking dimensions**.

Set id	Item id	Quantity	Batch
17	cake	3	b1
17	cake	5	b3
17	cake	5	b4

New data model

WHSInventoryTransaction

Transaction - change performed in the warehouse.

Keeps track of **storage dimensions.**

Created	Set id	Type	Location	Reference category	Reference id
12:15	17	Issue	shelf_7	Work	W-123
12:15	17	Receipt	user	Work	W-123

WHSInventoryTransactionTypeEnum (sys) [Application Suite]
- PhysicalReservation
- RemovedPhysicalReservation
- RegisteredIssue
- RegisteredReceipt

WHSInventoryItemSetElement

Inventory - object of the transaction.

Keeps track of **product and tracking dimensions**.

Set id	Item id	Quantity	Batch
17	cake	3	b1
17	cake	5	b3
17	cake	5	b4

Set can be reused by different transactions

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Warehouse Transactions example*

* very simple example

`InventTrans / InventTransOrigin`

Created	Quantity	Item	Location	Reference category	Reference id
12:15	-2	headphones	warehouse_51	Sales Order	SO-065

`WHSInventoryTransaction`

Created	Set id	Type	Location	Reference category	Reference id
12:30	a34b	Issue	user	Work	W-223
12:30	a34b	Receipt	baydoor	Work	W-223

`WHSInventoryItemSetElement`

Set id	Item id	Quantity	Serial id
a34b	headphones	1	s1
a34b	headphones	1	s2

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Reservations

Created	Type	Location	Reference category	Reference id
12:10	Reservation	shelf_7	Work	W-223

Reservations

Created	Type	Location	Reference category	Reference id
12:10	Reservation	shelf_7	Work	W-223
12:15	Removed reservation	shelf_7	Work	W-223
12:15	Issue	shelf_7	Work	W-223
12:15	Receipt	user	Work	W-223

Reservations

Created	Type	Location	Reference category	Reference id
12:10	Reservation	shelf_7	Work	W-223
12:15	Removed reservation	shelf_7	Work	W-223
12:15	Issue	shelf_7	Work	W-223
12:15	Receipt	user	Work	W-223
12:15	Reservation	user	Work	W-223

Item sets – creating and reusing
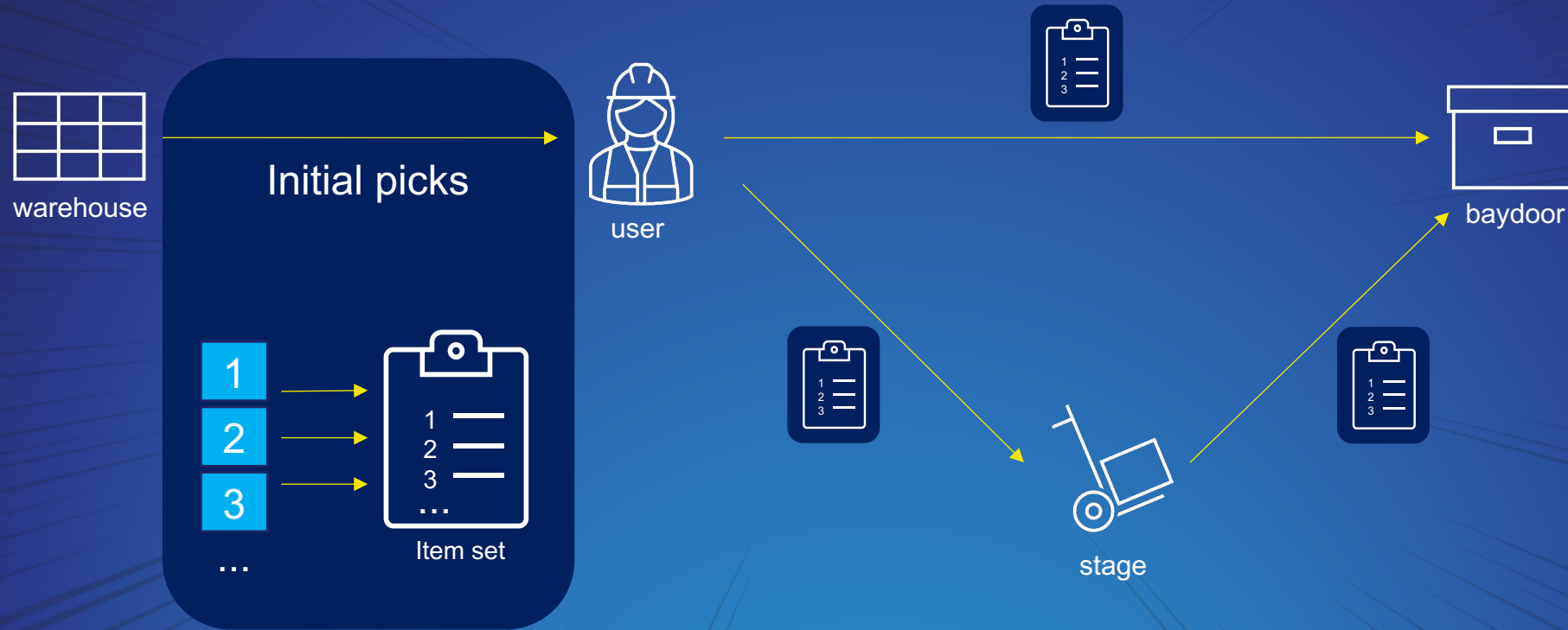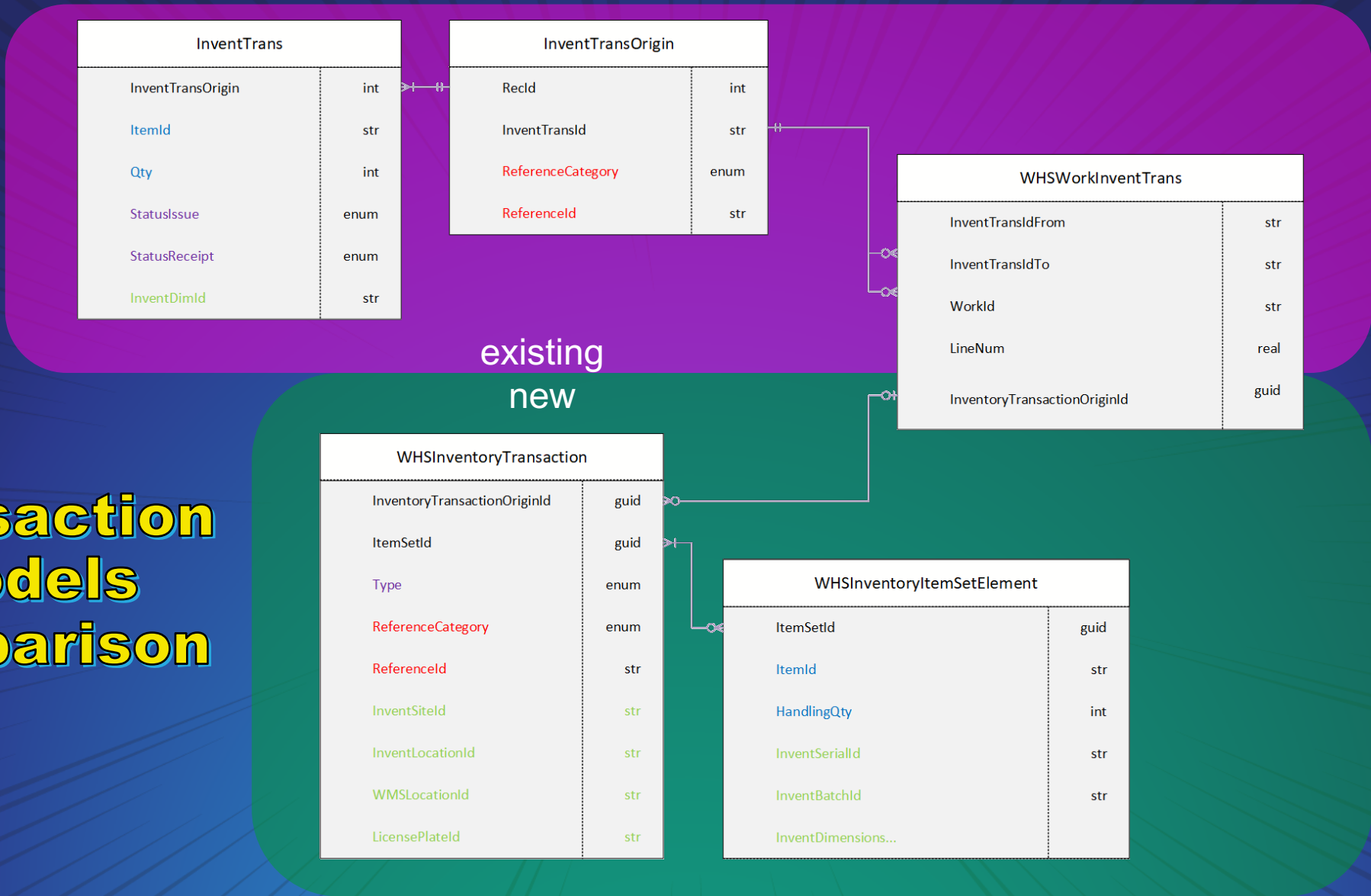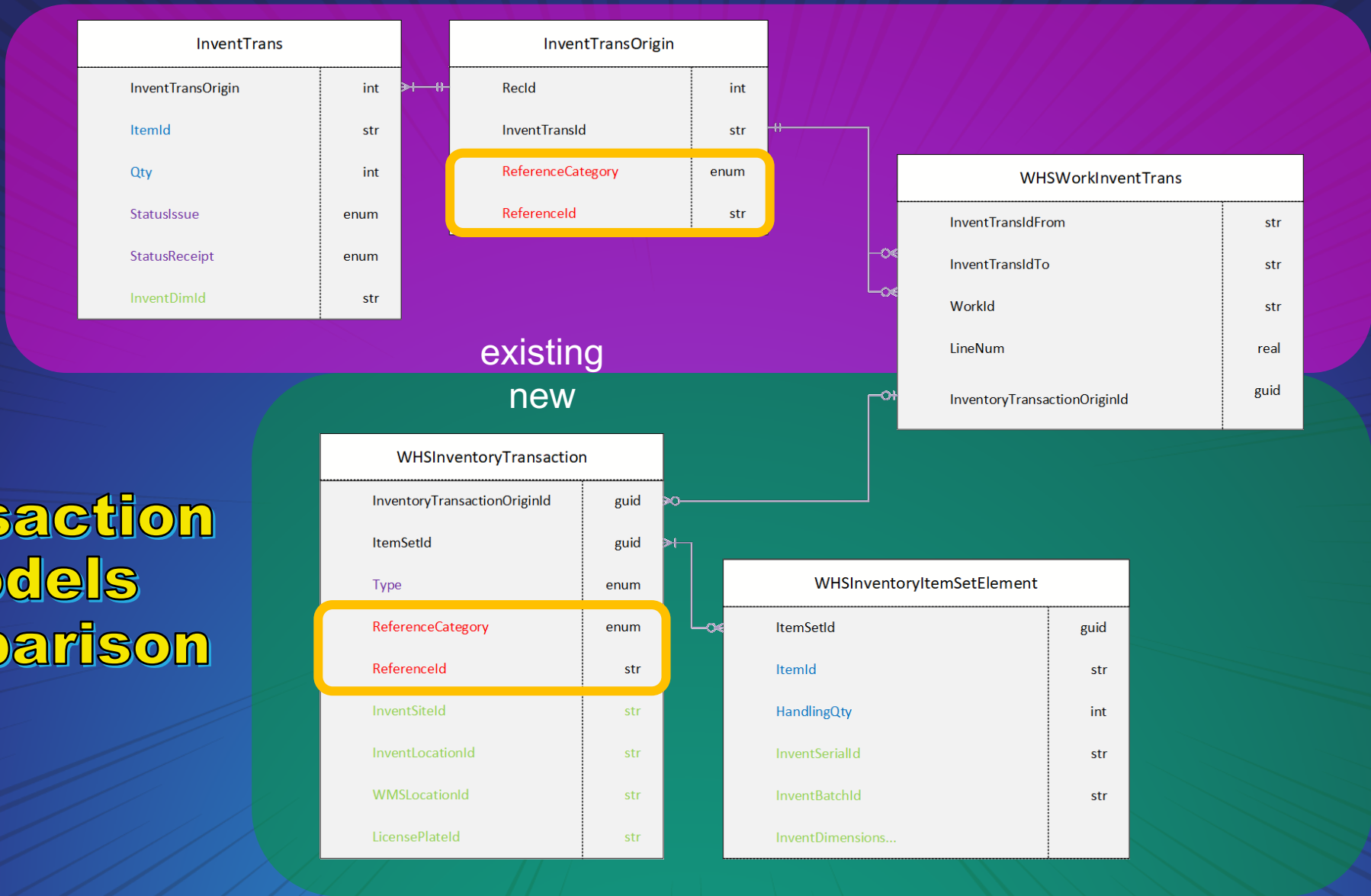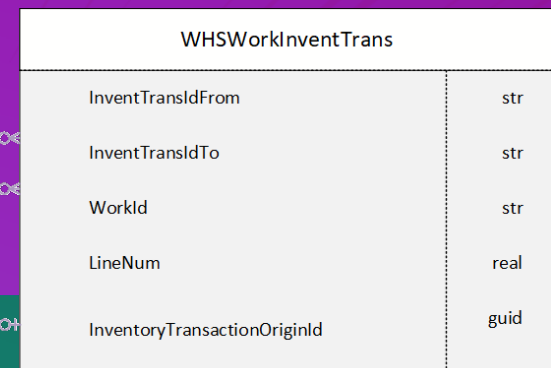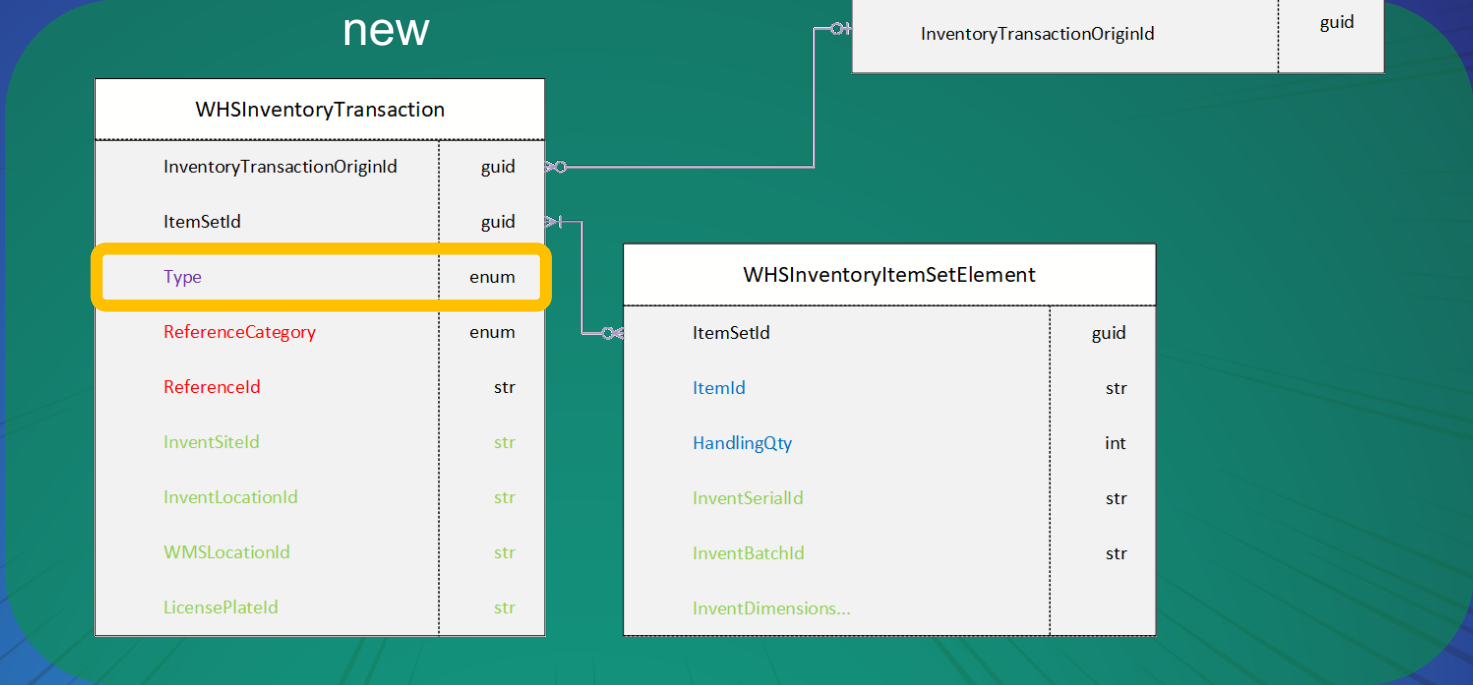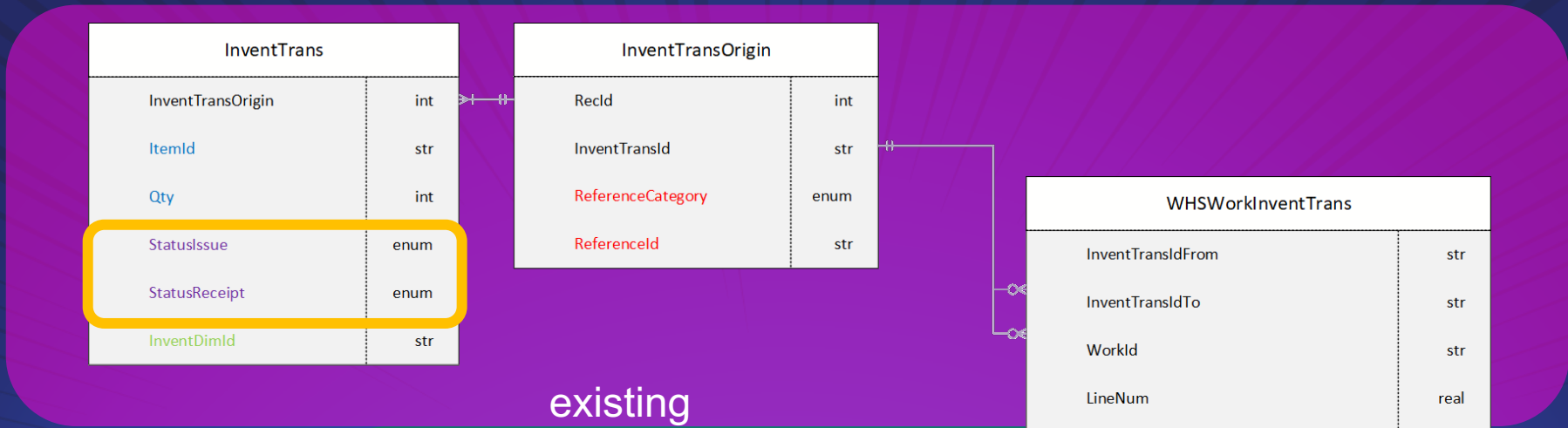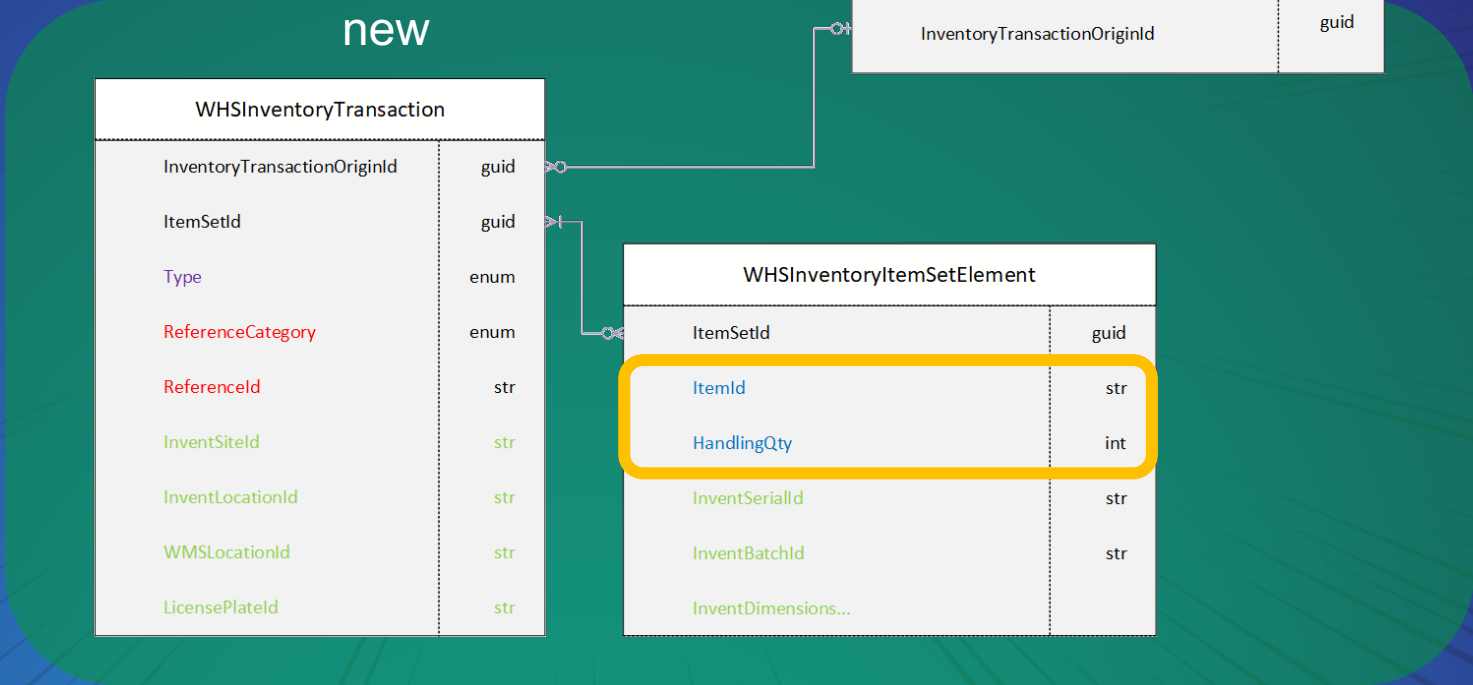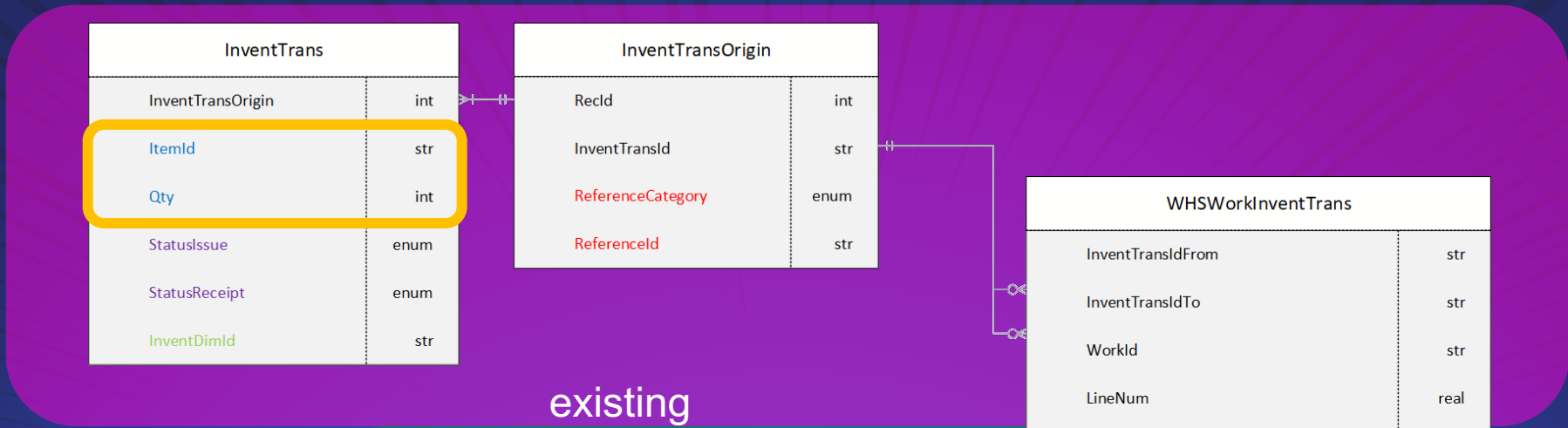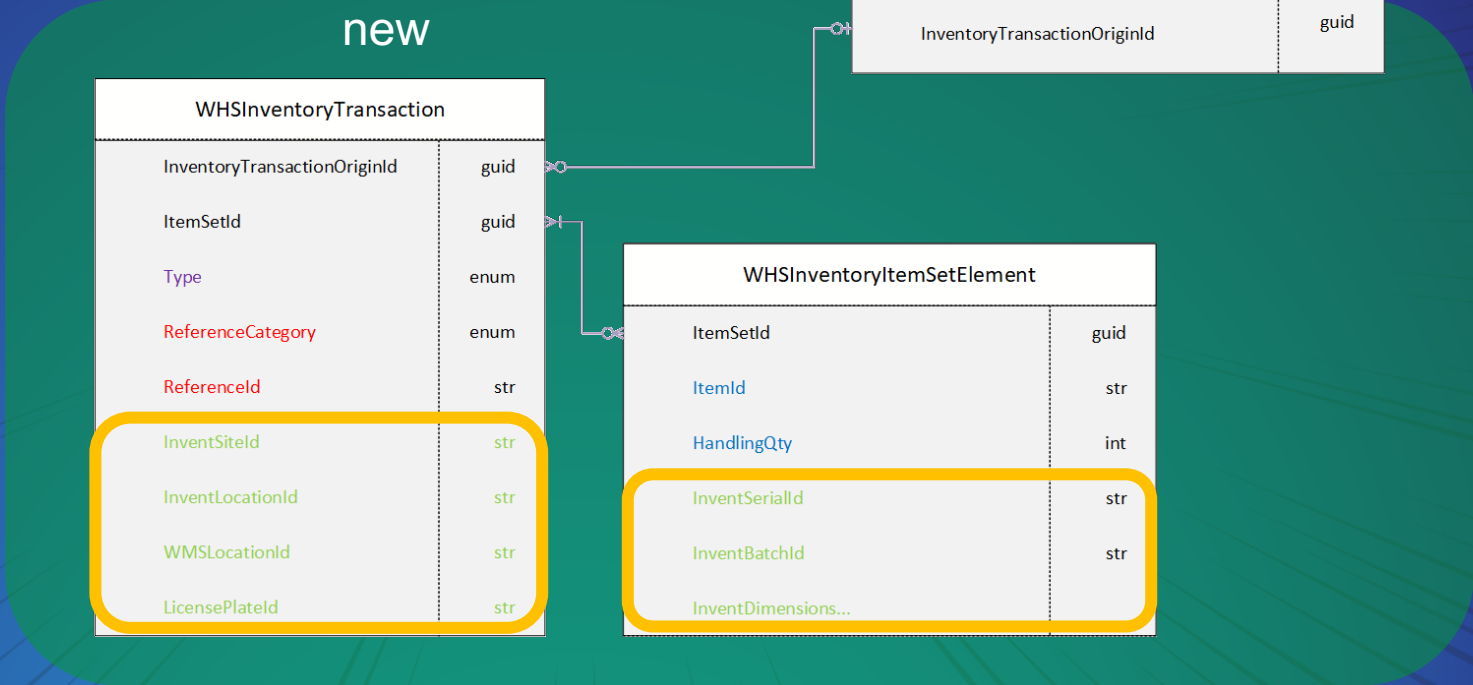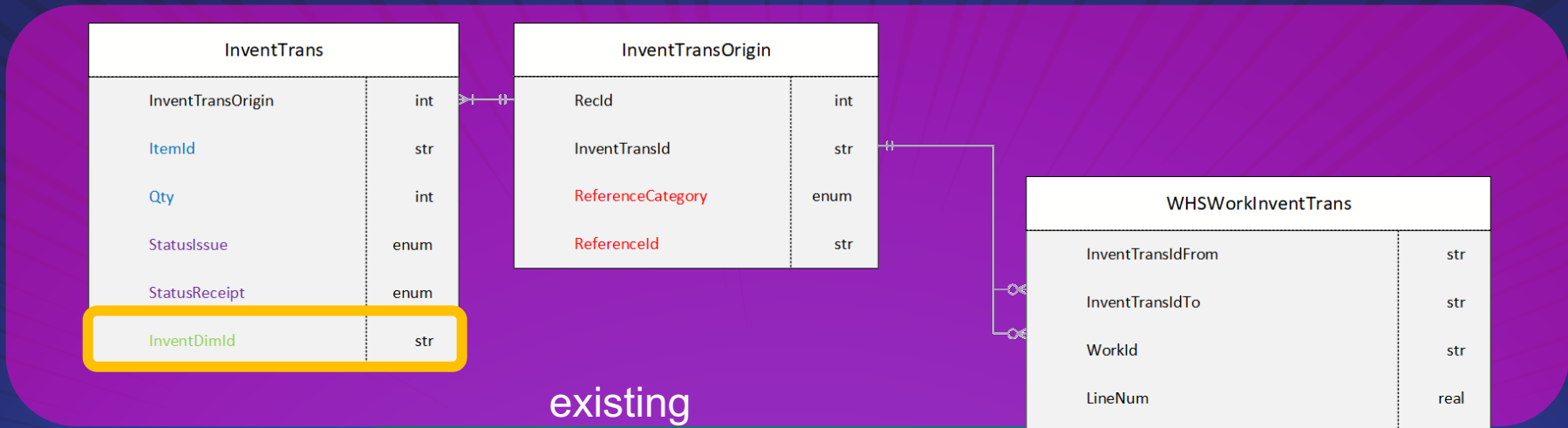
Archival of transactions

Archival clean up

Clean up job
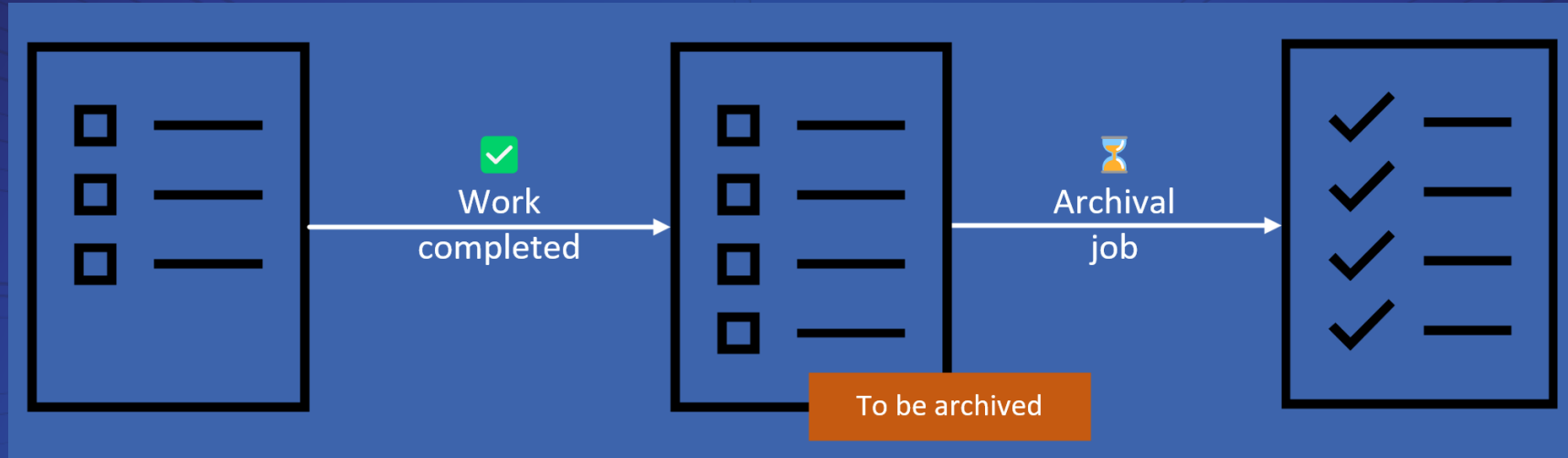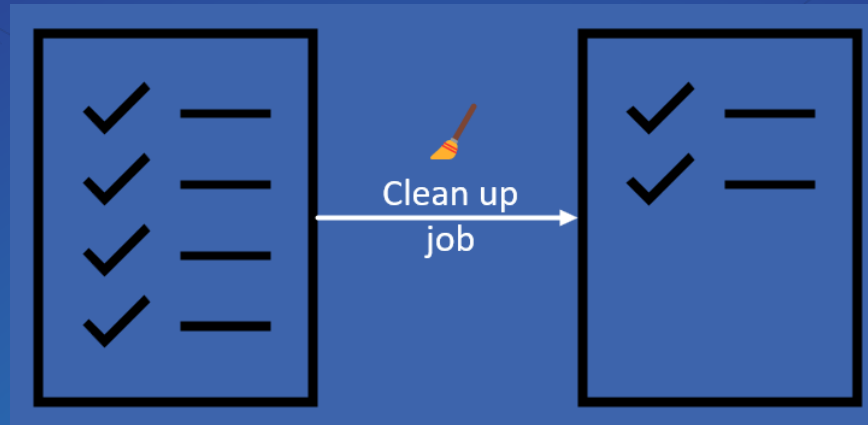
✓ configurable
✓ for reservation related transactions*
✓ reduces size of the archive table

* for now

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UI changes

Inventory transactions SI001

Standard view ⌄

🔍 Filter

Transaction filter
Display all ⌄

○	Item number	Physical date	↑	Financial date	Reference	Number	Receipt	Issue	Quantity	Unit	CW quantity	CW unit	Cost amount	Site	Warehouse	Location
	SI001				Sales order	000885		Picked	-1.00	ea				2	24	BAYDOOR
	SI001				Sales order	000885		Picked	-1.00	ea				2	24	BAYDOOR
	SI001	2/20/2023		2/20/2023	Counting		Purchased		1.00	ea				2	24	BULK-001
○	SI001	2/20/2023		2/20/2023	Counting		Purchased		1.00	ea				2	24	BULK-001

Warehouse transactions SI001

Standard view ⌄

🔍 Filter

Transaction filter
Display all ⌄

○	Item number	▽	Date	↑	Reference	Number	Warehouse inventory trans...	Quantity	Site	Warehouse	Serial number	Inventory status	Location	License plate
	SI001		2/20/2023		Sales order	000885	Registered issue	-1.00	2	24	s1	Available	BAYDOOR	000USMF-000000...
	SI001		2/20/2023		Sales order	000885	Registered issue	-1.00	2	24	s2	Available	BAYDOOR	000USMF-000000...
	SI001		2/20/2023		Counting		Registered receipt	1.00	2	24	s2	Available	BULK-001	
	SI001		2/20/2023		Counting		Registered receipt	1.00	2	24	s1	Available	BULK-001	
	SI001		2/20/2023		Work	USMF-000017	Removed physical reserva...	2.00	2	24		Available	24	
	SI001		2/20/2023		Work	USMF-000017	Physical reservation	-2.00	2	24		Available	24	
	SI001		2/20/2023		Work	USMF-000017	Registered receipt	1.00	2	24	s2	Available	BAYDOOR	000USMF-000000...
	SI001		2/20/2023		Work	USMF-000017	Registered issue	-1.00	2	24	s2	Available	24	000USMF-000000...
	SI001		2/20/2023		Work	USMF-000017	Registered receipt	1.00	2	24	s1	Available	BAYDOOR	000USMF-000000...

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Configuration

- ✓ **Warehouse-specific inventory transactions** feature
- ✓ warehouse management parameters
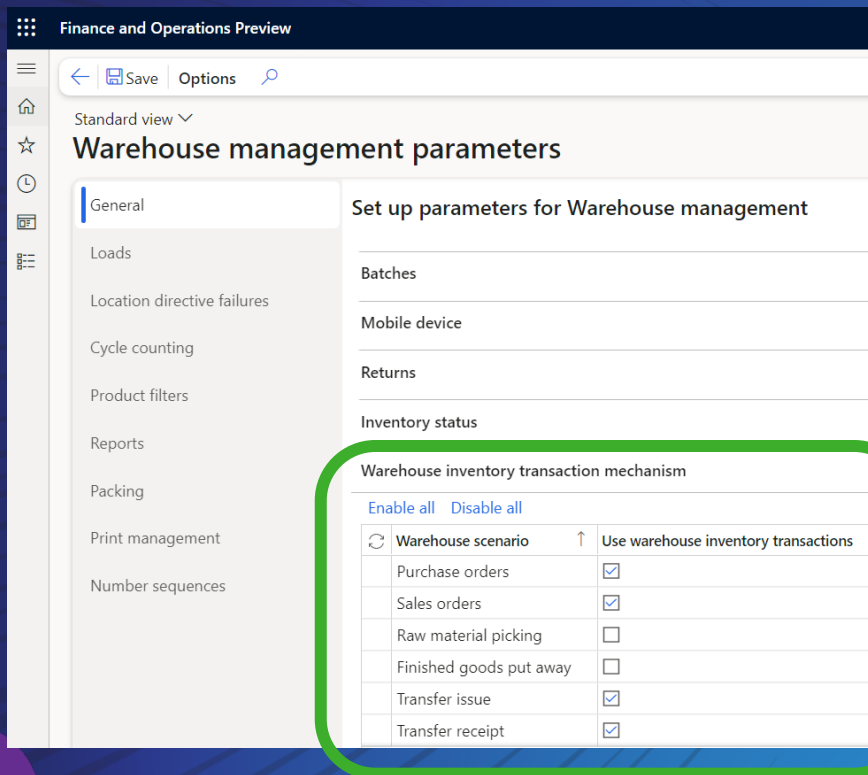
`WHSWorkTable.InventoryTransactionMechanism`
`WHSContainerTable.InventoryTransactionMechanism`

WHSInventoryTransactionMechanismEnum (sys) [Application Suite]
- InventTrans
- WHSInventoryTransaction
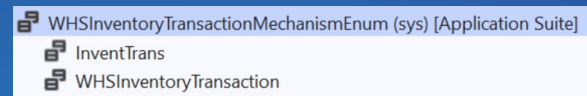
Mechanism cannot be changed for already created work/container.

Performance

Performance

Sales Picking – DevBox, Demo Data
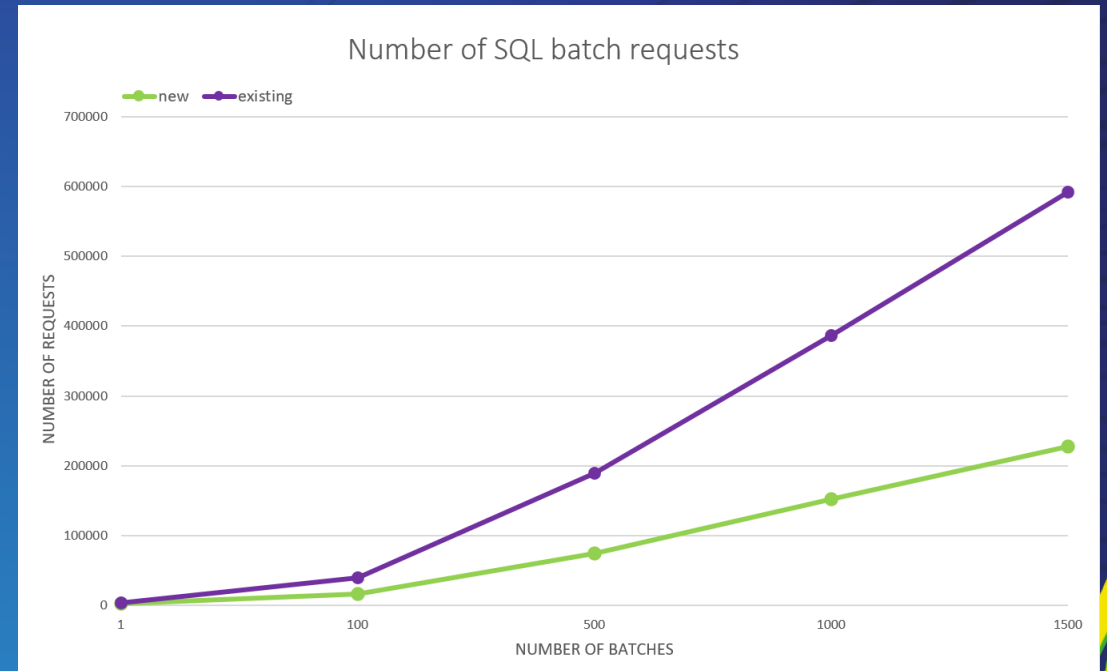
Performance

Full License Plate move – DevBox, Demo data
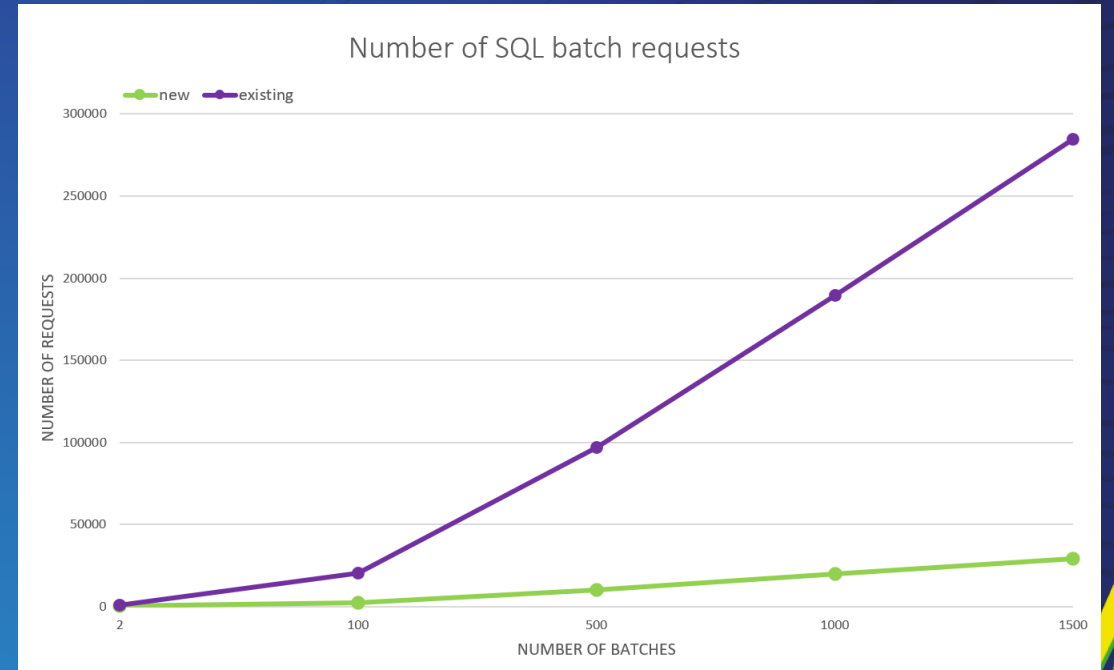
Performance

Reported by customers

Full LP movement: **~3-9 times faster**
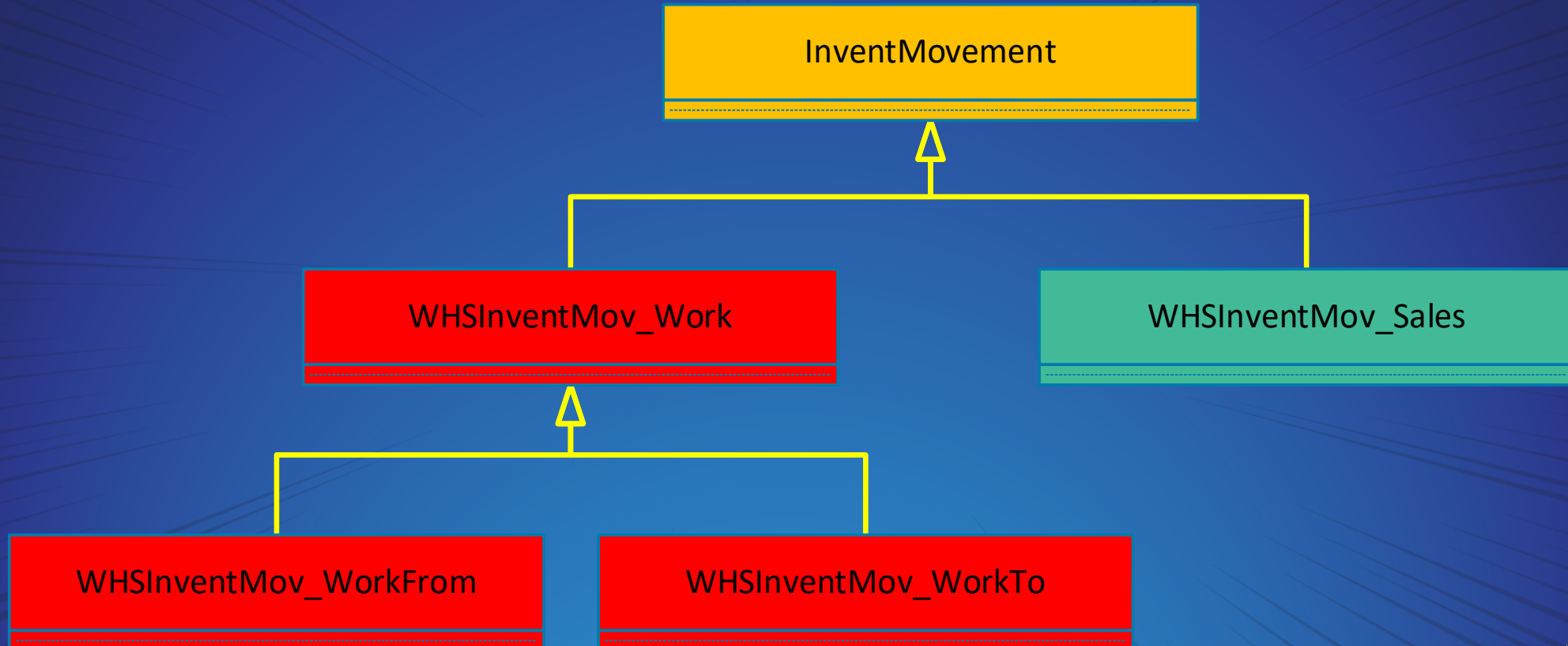
Sales picking improvements: **~50% faster**

No inventory transactions

Warehouse works and containers have no records in:

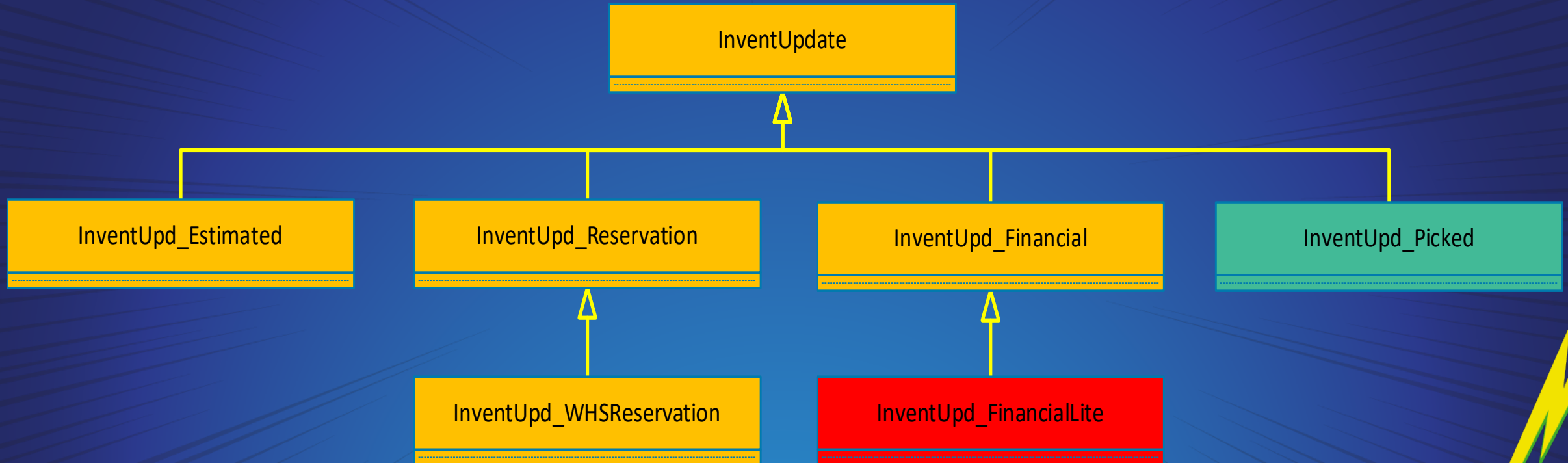- InventTrans
- InventTransOrigin
- InventTransOriginTransfer

Other X++ extensibility changes

Few methods not called in:

- WHSInvent
- WHSWorkExecutePutAwayToLocation
- Tracing form(s)

* Full list of breaking changes is in the <u>feature validator</u>
(next slides will describe that)

Absence of the financial impact

Cannot have warehouse operations with financial impact.
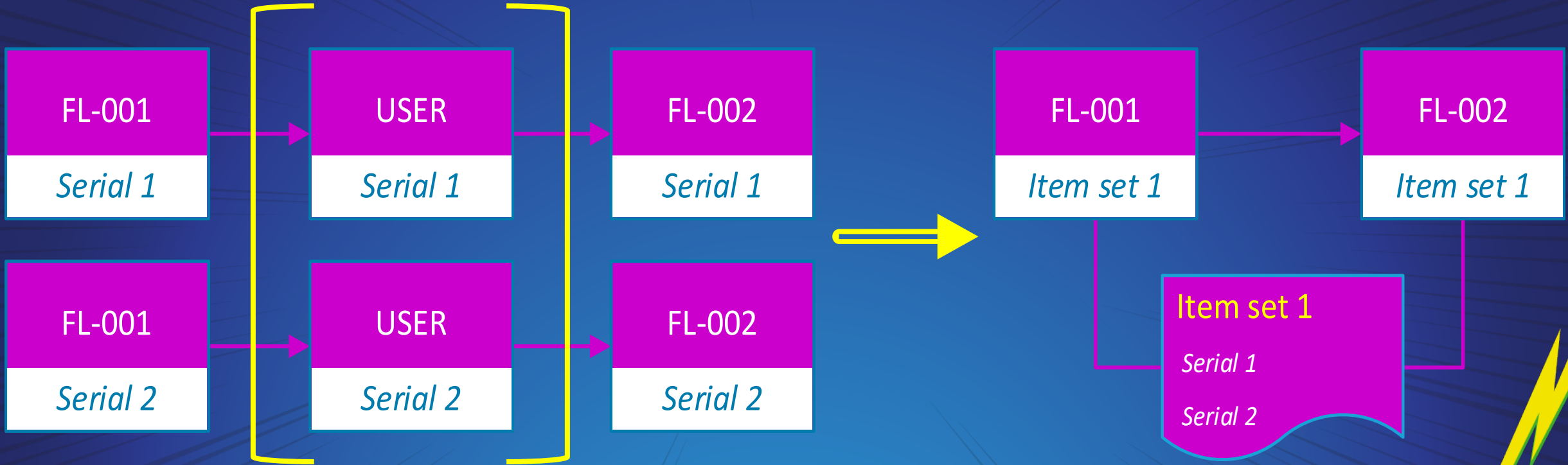
No "Ordered" and "On order" transactions

When Pick work line is executed,
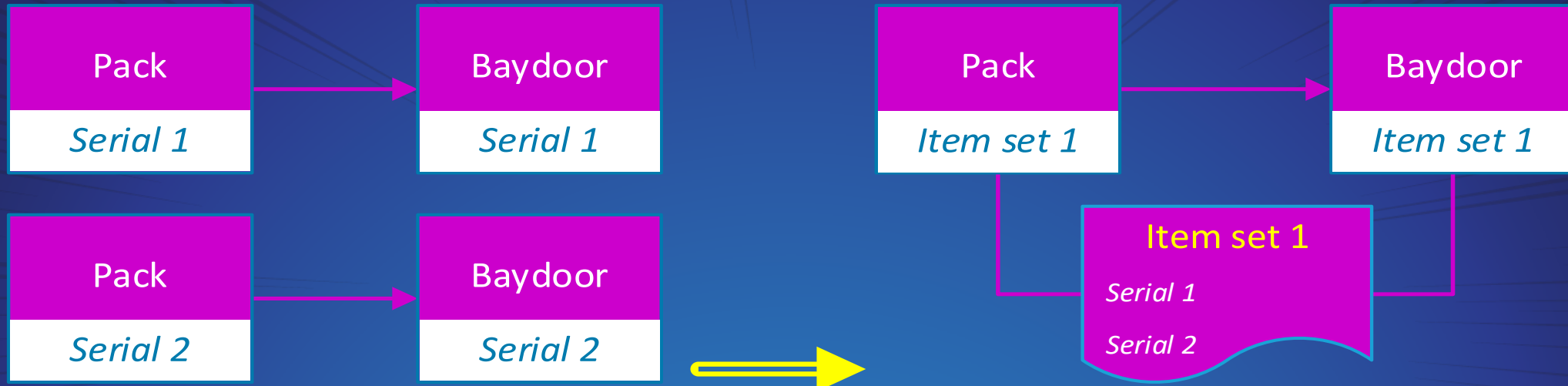the on-hand won't tell that some quantity is "expected"
on the next put location.

Warehouse transactions form

Some existing customizations on Inventory transactions form should be applied to the Warehouse transactions form.

Close container

Tooling: Feature validator

When user enables the feature, system finds extensions:

Override
Wrap
Subscribe

…on the "broken" methods and blocks user, if detected.

Tooling: Best Practice (BP) rules

Finds same broken extensions as Feature Validator

+

Access to "deprecated" table fields

⚠️ **Must run explicitly!**

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What does NOT change?

On-hand data structures (`InventSum` and `WHSInventReserve`)

Source document transactions

Release schedule

	10.0.31	10.0.32
	Private Preview	**Public Preview**
Sales Order	✓	✓
Purchase Orders	✗	✓
Inventory Movement	✓	✓
Replenishment	✓	✓
Production Orders	✗	✓
Transfer Orders	✗	✓
Return Orders	✗	✓
Quality Orders	✗	✓
Containers	✓	✓
Cross docking	✗	✓
Warehouse transactions form	✗	✓
Tracing Forms	✗	✓
Warehouse transactions' archival	✓	✓

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