COMMUNITY SUMMIT

DYNAMICS 365 CUSTOMER ENGAGEMENT CRM

Orlando, FL
October 19-23, 2025

COMMUNITY SUMMIT

POWER PLATFORM

Orlando, FL
October 19-23, 2025

The largest Microsoft Business Applications user conference on the planet.

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Field Service: Why is Scheduling So Hard AI in Service Operations

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Pierre Hulsebus
Field Service Director
Alithya

Nathan Wertz
Director
Dynamics CE Delivery
Alithya

Winner

2023 Microsoft Partner of the Year

Alithya

VITALYST®

An Alithya Company

Microsoft

- Impact Award – Business Applications
- Dynamics 365 Customer Service & Field Service
- Business Excellence - Learning

Agenda

- Intro – 5 Mins
- Game (Scheduling Game) – 10 Mins
  - Show the Game (Screen Share)
- Key Concepts (15 Minutes)
  - Even 10 Resources ROI
  - Fastest VS Optimal
  - Review Game Results
- Tools – Demos (20 Minutes)
  - Scheduling Agent – (3 Minutes)
  - Single Resource Optimization (2 Minutes)
  - Substitute For Sick / Canceled (3 Minutes)
  - “Roll Over to Contractor” (2 Minute)
  - Intraday Scheduling – “Red Ball Express” `
- Q/A (10 Minutes)

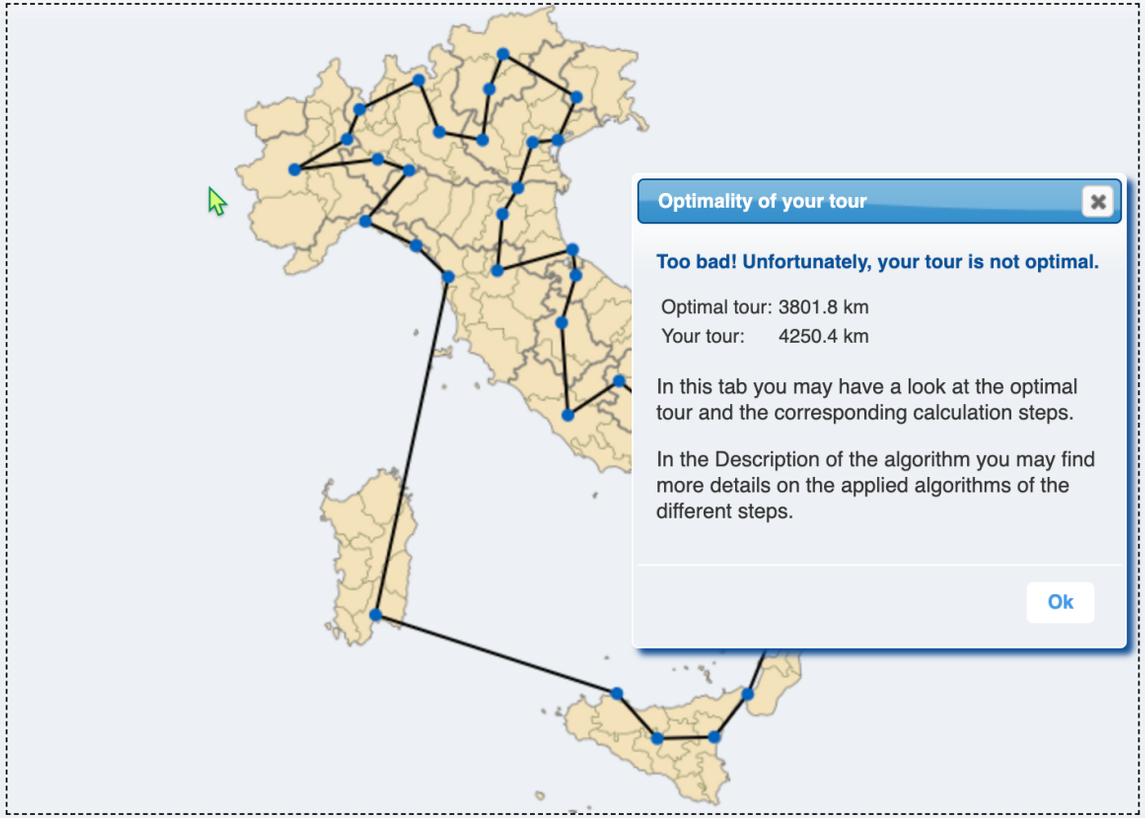
Traveling Salesman Problem

- https://tinyurl.com/SchedulingRSO
- Italy
- 35 Locations
  - Your Miles _____
  - Optimal Miles _____

Traveling Salesman Problem

Das Problem des Handlungsreisenden

Introduction | Create game | Play game | Optimal tour | Description of the algorithm | Calculation steps | More



Optimality of your tour

Too bad! Unfortunately, your tour is not optimal.

Optimal tour: 3801.8 km
Your tour: 4250.4 km

In this tab you may have a look at the optimal tour and the corresponding calculation steps.

In the Description of the algorithm you may find more details on the applied algorithms of the different steps.

Ok

Length of the optimal tour:	**3801.8 km**
Length of your tour:	**4250.4 km**
Calculation time:	**31 ms**

Too bad! Unfortunately, your tour is not optimal.

Show custom tour

How has the solution been calculated?

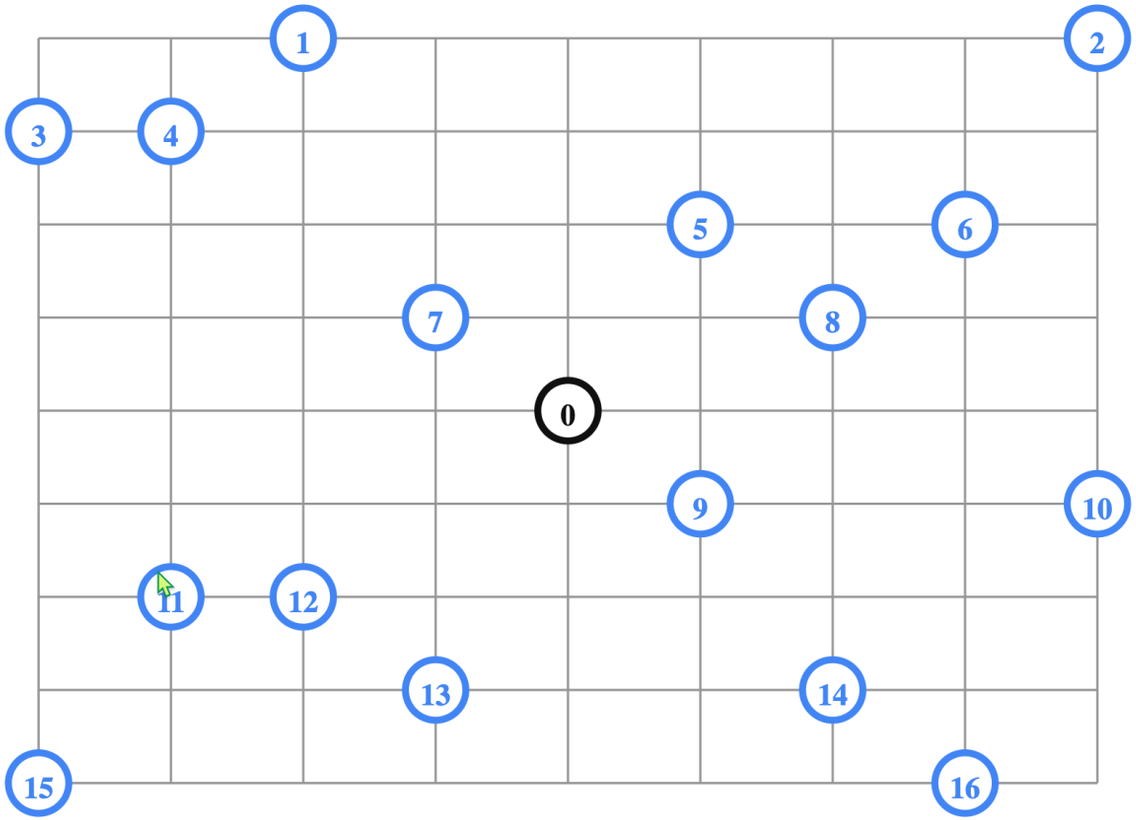
By clicking the button you will get further information regarding the functional principles of the applied algorithms, which contributed to the solution.

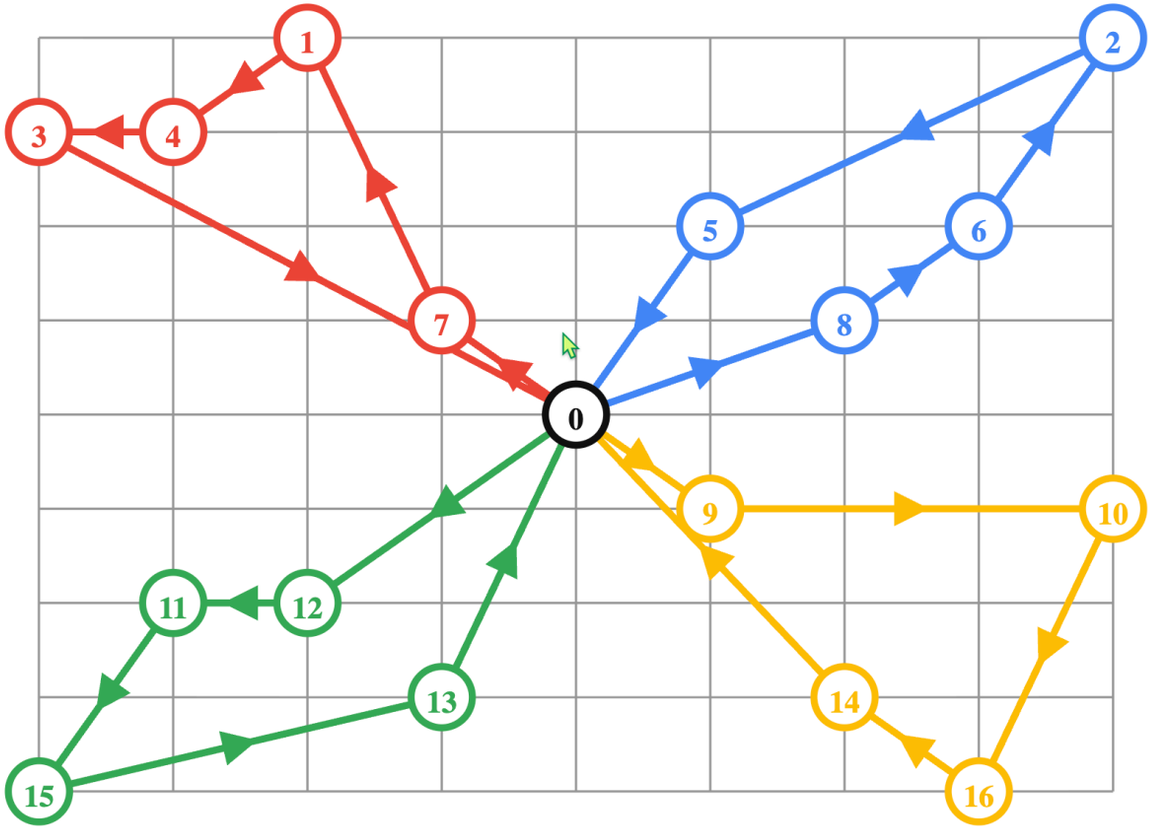
Description of the algorithm

Alternatively, you can directly get the calculation steps displayed, which led to this round trip.

Calculation steps

Show GameCode...





QUESTION - What Place Is The Most Expensive Place For A Field Engineer to Work?

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Driving to a Job – *High Cost, Zero Value*

- Every mile driven costs fuel, maintenance, insurance, and time that can't be billed.
- This is **the most unproductive expense** in field operations because it generates **no direct revenue**.
- Smart routing, territory planning, and clustering jobs reduce this waste by 20–40%.
- *Goal:* Minimize time in transit — it's pure overhead.

Planning in the Office – *Moderate Cost, Strategic Value*

- Dispatchers and technicians spend time reviewing jobs, routes, or parts availability.
- This cost is moderate but has **strategic value** if planning is precise and data-driven.
- With tools like **Copilot Scheduling Agent**, much of this becomes automated, shifting planners to higher-value tasks like exception handling.
- *Goal:* Automate routine planning and reserve human time for optimization.

Working on a Billable Project in the Field – *High Value, High Cost*

- Field time is expensive — wages, vehicles, equipment, and opportunity cost per hour.
- However, this is also where **value is created** and **revenue is earned**.
- The objective isn't to reduce this time but to **maximize its productivity** — ensuring every field hour contributes to billable output.
- *Goal:* Maximize utilization and eliminate rework, so every paid hour is productive.

10 resources × 8 work orders per day = 80 visits per day

- Assuming a **5-day work week:**
  80 visits/day × 5 days = **400 visits per week**

400 visits/week × 4 weeks = 1,600 visits in 4 weeks

80 visits/day × 5 days/week = **400 visits/week**

10 People 1 Month

Scope	Stops per Tech	Tech Count	Possible Routes	Time Horizon
Single Tech	8	1	40,320	1 Day
Team (Daily)	8	10	403,200	1 Day
Weekly	8	10	2,016,000	5 Days
4-Week Horizon	8	10	8,064,000	1 Month

The Numbers

- 10 – 20% Depending on Location and Industry
- 25k Per Year – HVAC Tech
- Travel cost per work order = 35 miles × $0.70/mile = **$24.50**
- Daily travel cost per technician = 8 work orders × $24.50 = **$196**
- Weekly travel cost per technician = $196 × 5 = **$980**
- If you have 10 technicians: 10 × $980 = **$9,800/week** in travel cost across the team.

Per Work Order Cost

Current baseline (from before)

- Average distance per work order: **35 miles**
- Cost per mile: **$0.70**
- Cost per work order: **35 × $0.70 = $24.50**

After 15% reduction

- Reduced distance: **35 × (1 – 0.15) = 29.75 miles**
- New cost per work order: **29.75 × $0.70 = $20.83**
- **Savings per work order:** $24.50 – $20.83 = **$3.67**

15% saves approximately **$76,000 per year** in vehicle cost alone for a 10-technician

Utilization Conversion

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18 Minutes a Day - Saved	• 3 More Work Orders a Week +0.4 additional jobs/day × 10 techs = **4 extra work orders/day** **4 × 5 = 20 extra work orders/week**
At $250 average revenue per work order	→ **$5,000 additional weekly revenue**

Category	Weekly	Annual (52 weeks)
Mileage savings	$1,468	$76,336
Additional billable utilization	$5,000	$260,000
Total Value Gain	**$6,468/week**	**≈ $336,000/year**

Scheduling ROI – Assignment Ethos

Reduces Wasteful Travel and Idle Time	• *Bad work:* Driving, waiting, re-routing. • *Good work:* Completing jobs, closing tickets, and satisfying customers.
Matches the Right Skill to the Right Job	• *Bad work:* Repeat calls, escalations, callbacks. • *Good work:* Single-visit resolutions and higher customer confidence.
Optimizes Job Sequencing and Work Density	• *Bad work:* Low-density, inefficient routing. • *Good work:* Tight routes and high-throughput service days.
Turns Dispatchers into Strategic Controllers	• *Bad work:* Manual reassignments. • *Good work:* Data-driven oversight and SLA assurance.
Improves Customer Predictability and Experience	• *Bad work:* Missed windows and reactive rescheduling. • *Good work:* Predictable, proactive service with higher CSAT and repeat revenue.

Total Economic Impact of Dynamics 365™ Field Service

Financial Benefits

346%
total return on investment

less than 6 months payback

"The platform has **paid for itself 10 times over**... [and] it will support our plans to expand into servicing adjacent equipment at our customers' locations."
— Enterprise Infrastructure Director, Beverage Distribution

$42.65M of PV benefits

$9.55M in costs

$33.10M in NPV

Productivity Gains

14%
productivity increase for technicians[1]

40%
productivity increase for dispatchers

"We measure efficiency for each technician, and we have been able to **plan more work orders** because we have seen the increase in technician utilization."
— Senior Product Manager, Telecommunications

Efficiency Boost

12%
reduction in second visits

$2.1M
saved from avoided travel

100
hours saved from more efficient management

Administrative Savings

$2.8M
interest savings from faster invoicing[2]

$829K
savings from retiring old systems[3]

[1]Productivity gains realized after Dynamics 365 Field Service is fully implemented. [2]Interest savings are from accounts receivable. [3]Savings from reduced licensing cost
Source: "The Total Economic Impact™ of Microsoft Dynamics 365 Field Service," a commissioned study conducted by Forrester Consulting on behalf of Microsof
December 2023. All quantified monetary benefits represent the three-year, risk-adjusted present value for a composite organization based on customer interview

Session Objectives

01

Learning Objective 1

- Utilize advanced scheduling algorithms to optimize workforce efficiency.

02

Learning Objective 2

- Learn strategies to balance workloads and minimize travel time while maintaining service levels.

03

Learning Objective 3

- Improve first-time fix rates with AI-powered recommendations and predictive analytics.

Welcome to the era of agentic service

 Agents +  Copilot +  Humans

Evolve service from human-led to agent-operated

A clear path to scale and impact with human-AI collaboration

Level 1

Human with assistants

Every employee has an AI assistant that helps them work better and faster

Level 2

Human-led agents

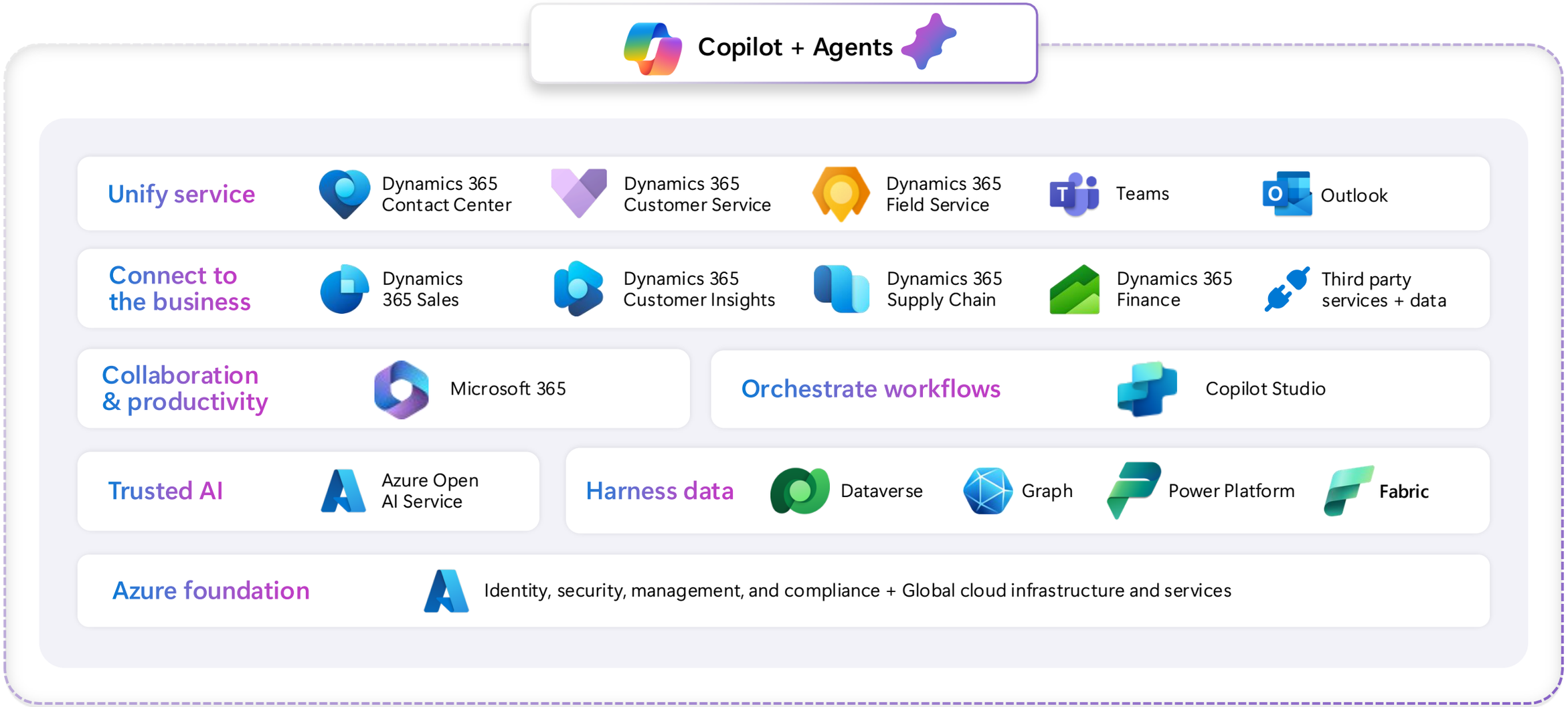
Agents join teams as “digital colleagues,” taking on specific tasks with human direction

Level 3

Human-led, agent-operated

Humans set direction and agents run entire business processes and workflows, checking in as needed

Scale with a complete, composable solution from Microsoft



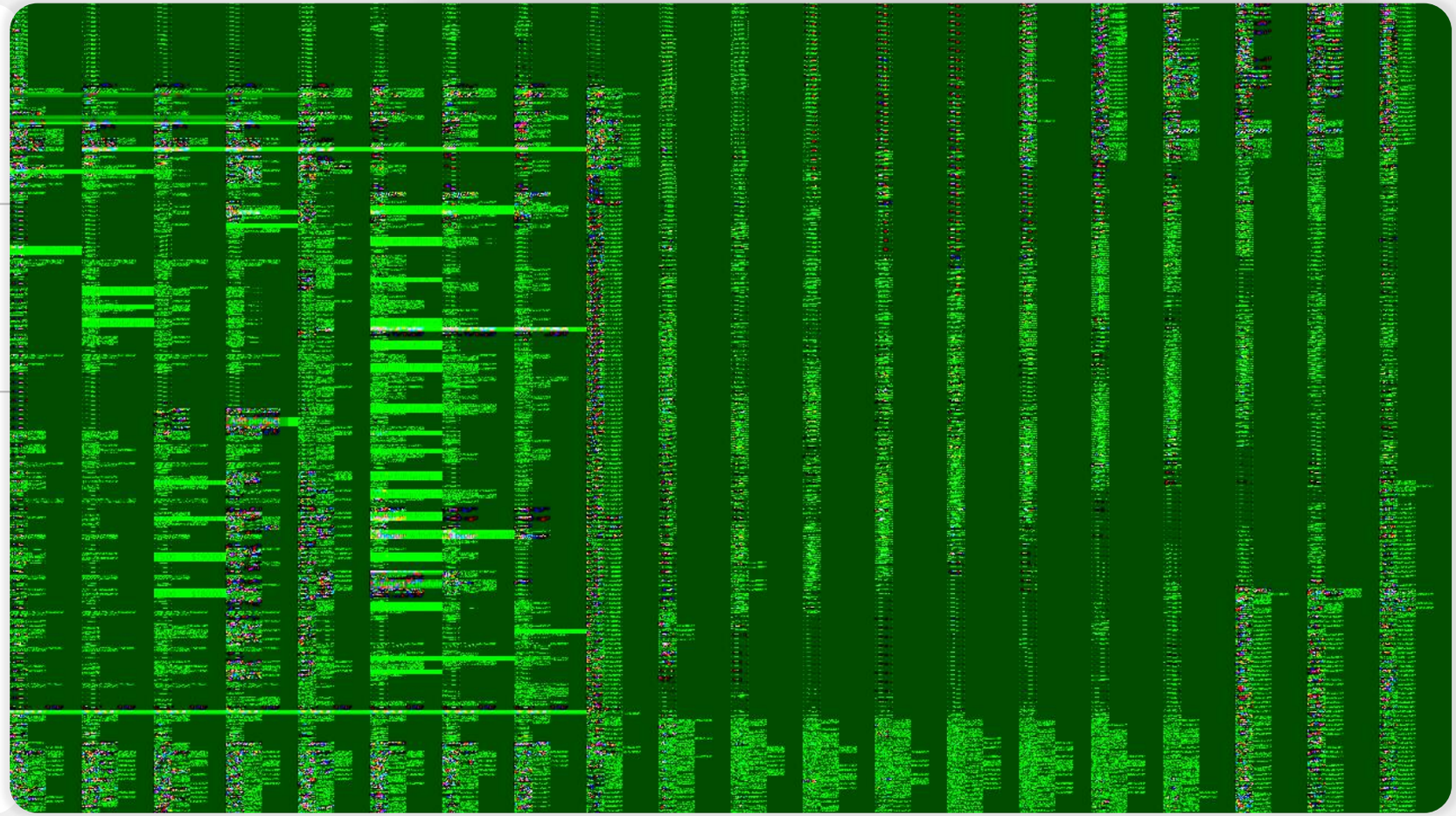
Optimize dispatch and scheduling with AI agents

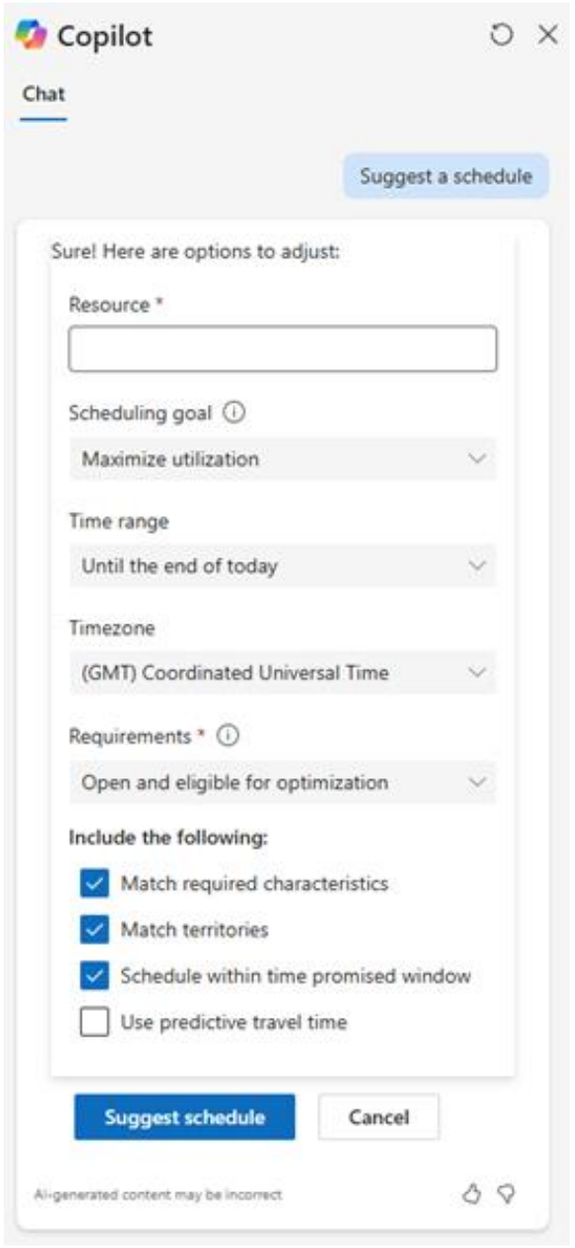
Keep schedules agile and service running smoothly

Handle delays, cancellations, and conflicts via natural language inputs with the Scheduling Operations Agent

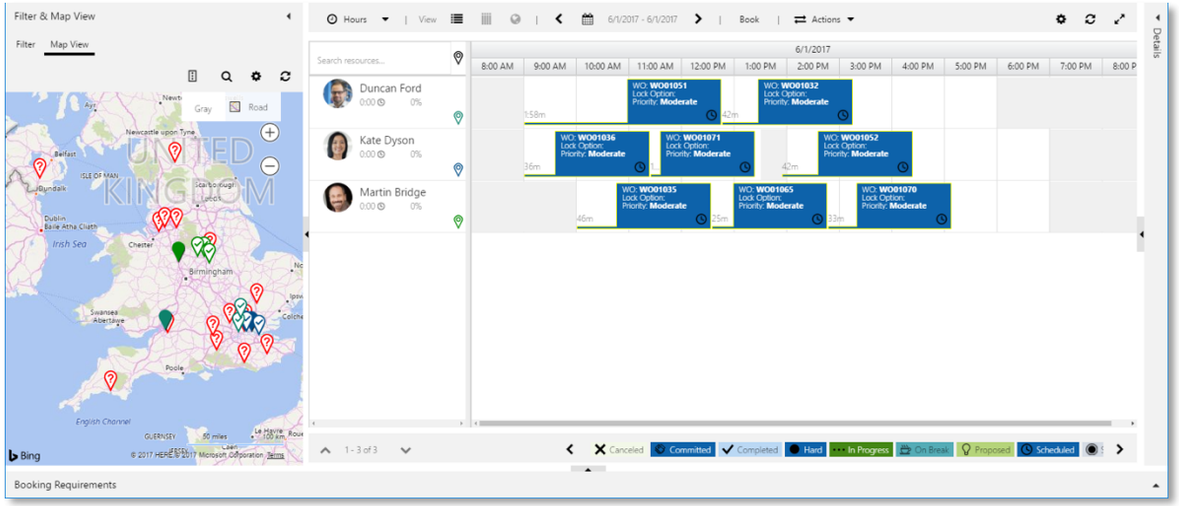
Us AI to allow dispatchers to improve the schedule of a single technician quickly and efficiently

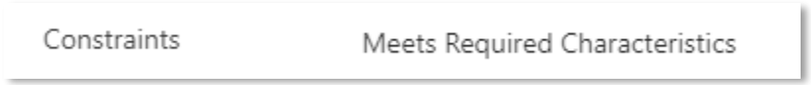
Improve on-time arrival and technician utilization through AI-powered recommendations

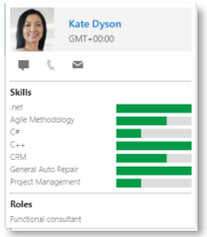


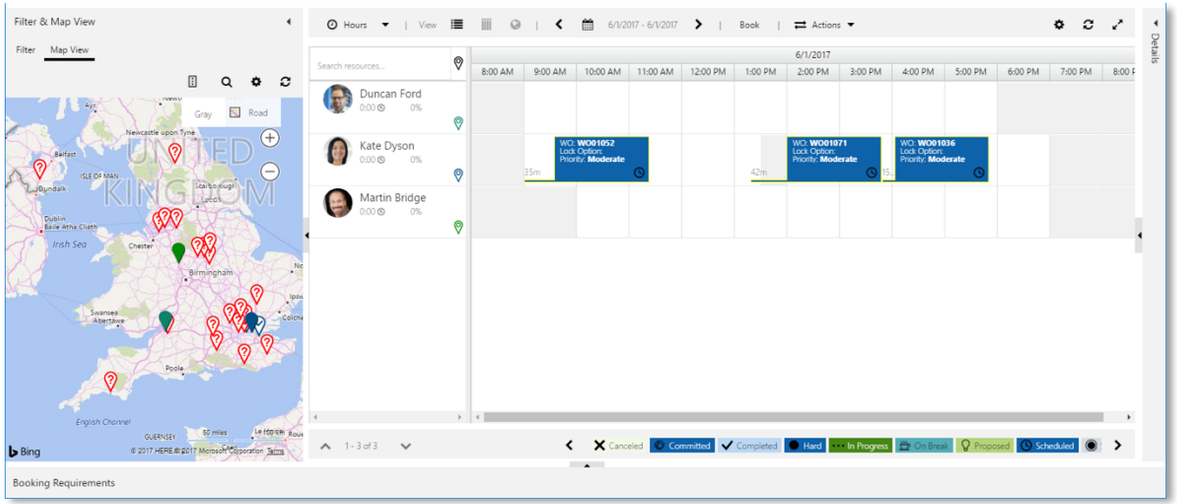

Copilot
Chat
Suggest a schedule
Sure! Here are options to adjust:
Resource *
Scheduling goal
Maximize utilization
Time range
Until the end of today
Timezone
(GMT) Coordinated Universal Time
Requirements *
Open and eligible for optimization
Include the following:
Match required characteristics
Match territories
Schedule within time promised window
Use predictive travel time
Suggest schedule
Cancel
AI-generated content may be incorrect

Goal>Constraint: Meets required characteristics



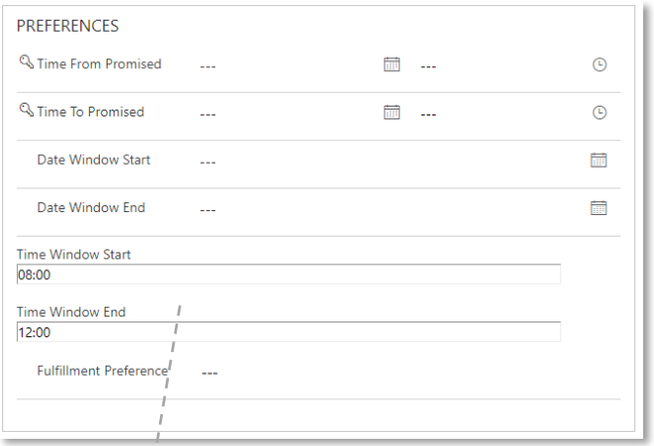


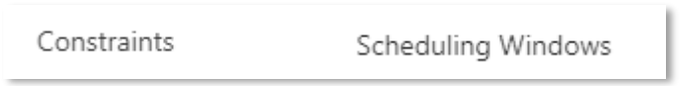


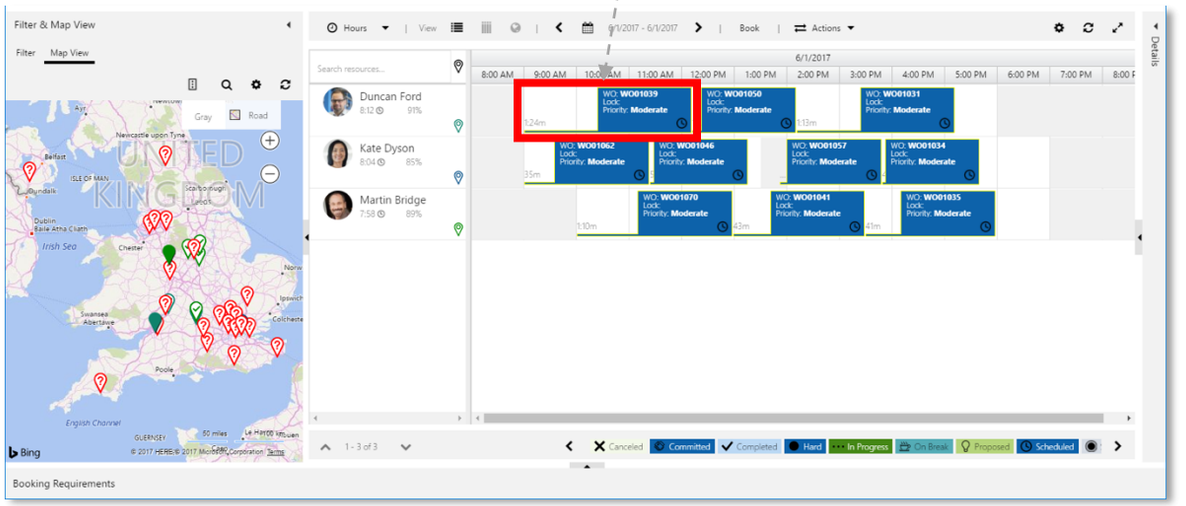


Meets Required Characteristics: Verifies the resource meets all the required skills and skill levels needed to complete the work.

Goal>Constraint: Scheduling windows

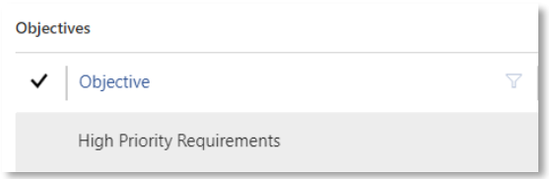


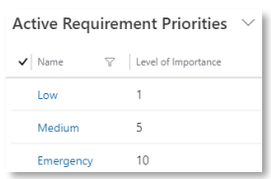




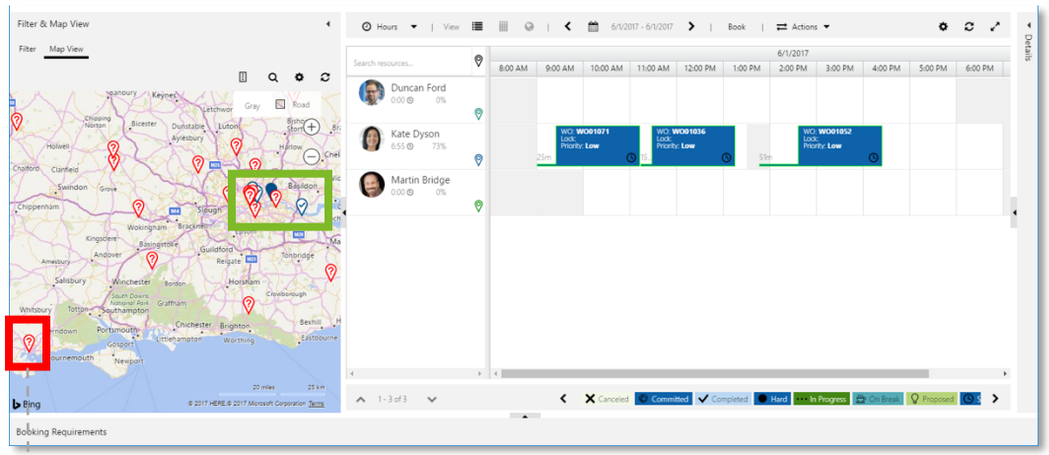
Scheduling windows: RSO will consider the preferences. RSO first checks the dates/times defined on the booking, if they are empty it will use the ones from the resource requirement. In the example above RSO makes sure the booking's ETA is between 8:00 and 12:00. If "Scheduling Windows" is unchecked, the booking can be outside the desired window, even if "Time promised" was specified.

Goal>Objective: High priority requirements

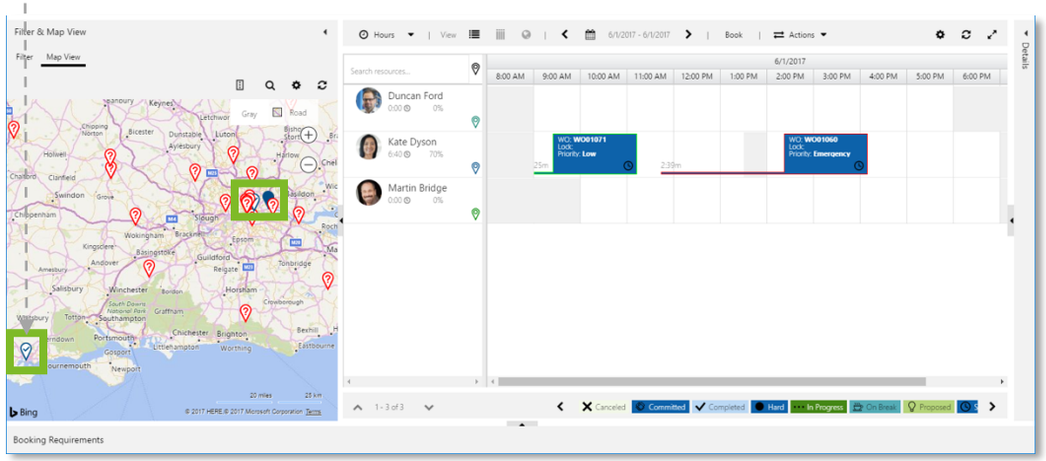




Before



After



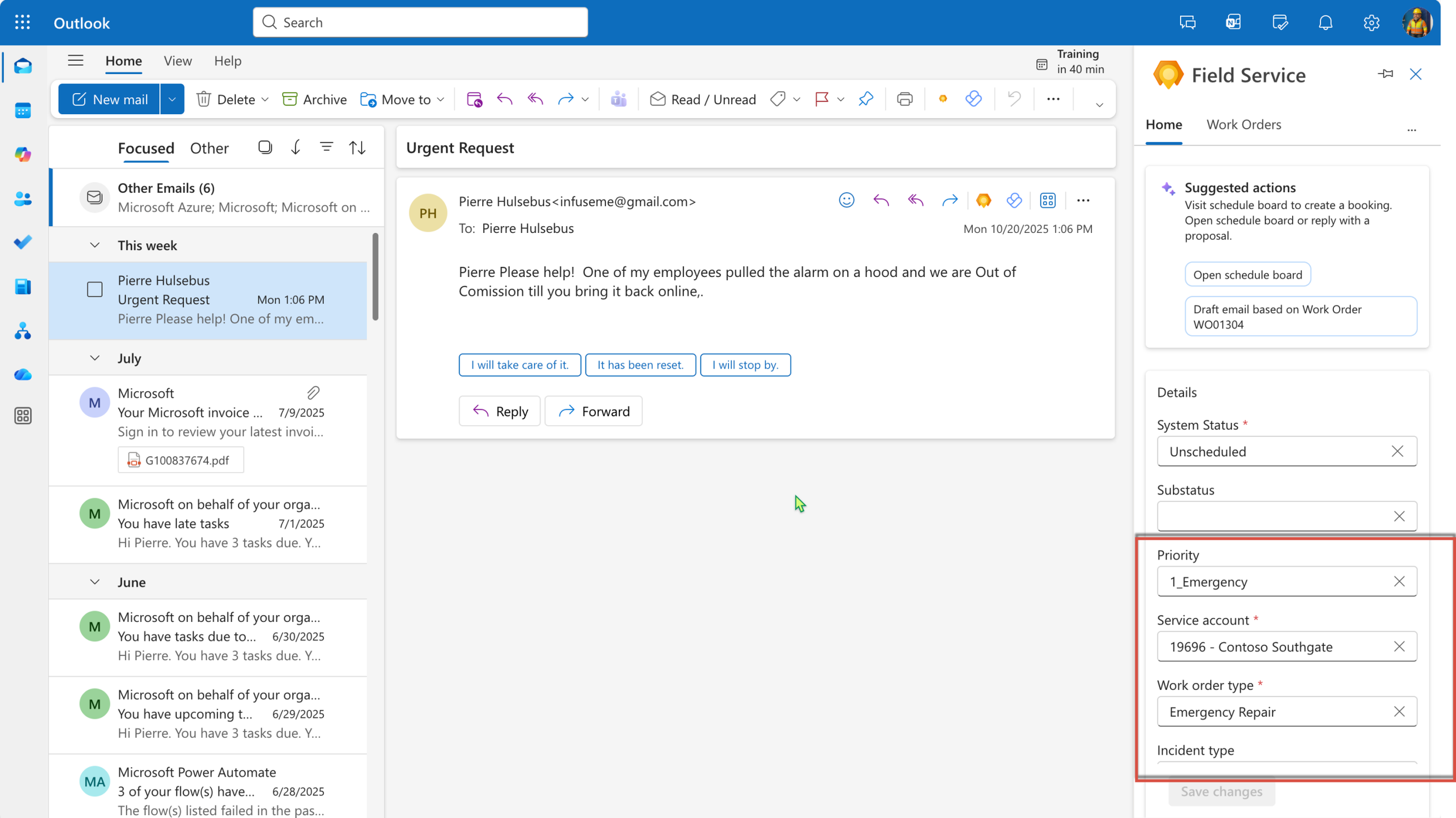
High Priority Requirements: Scheduling will prefer booking requirements with higher priorities. BEFORE: RSO schedules 3 low-prio jobs, the 4th one is too far away. AFTER: Giving the job "Emergency" priority, it will be preferred. "Emergency" gives a score of 10 vs. two "Low" jobs that only score 2x3=6. Caution: 3 "moderate" jobs will get a better score than 1 "emergency". 3x5=15 vs. 1x10=10

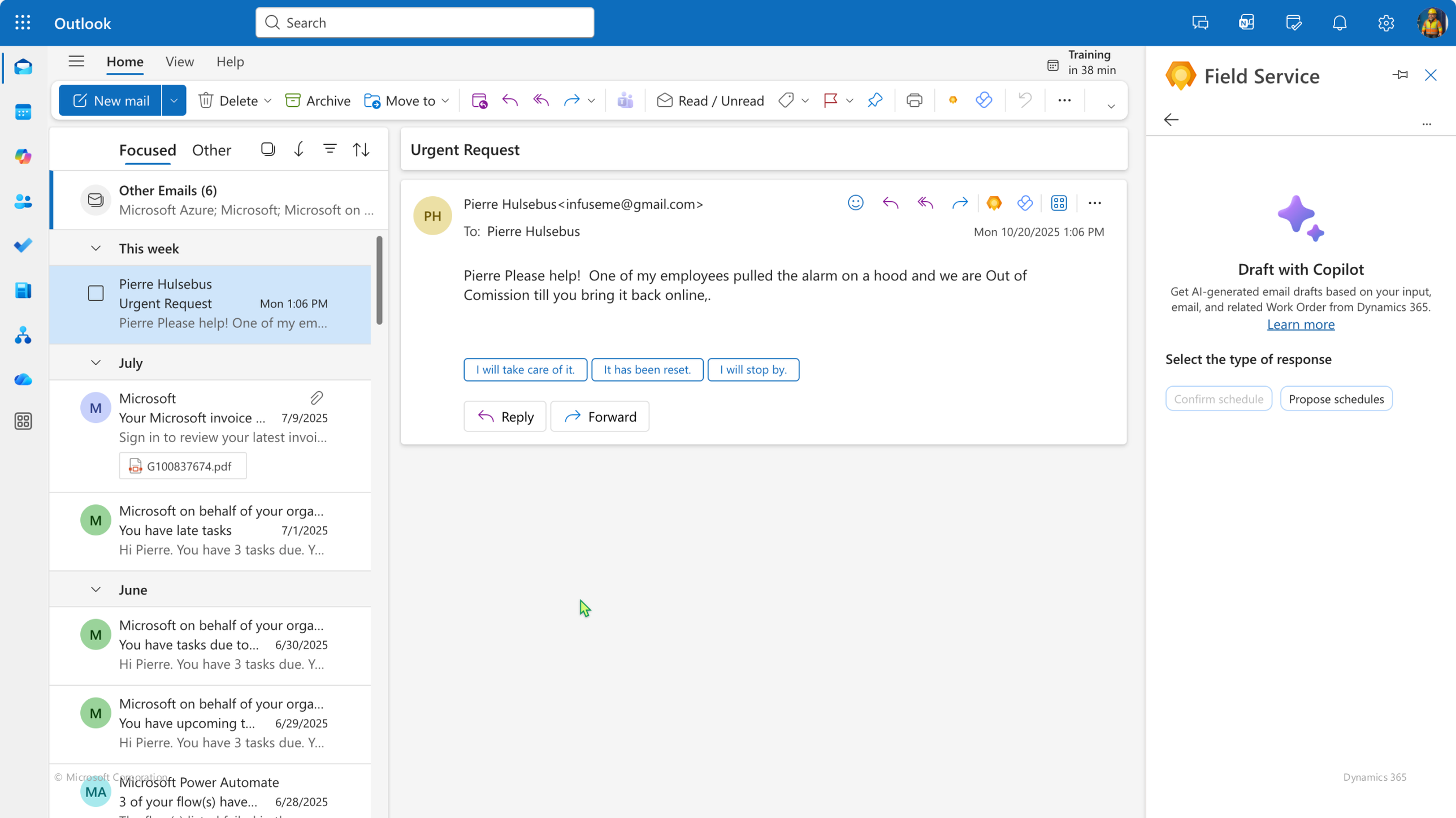
After Goal and Constraint #4 the impact of each factor is in the Single Digits

Factor	Weight Range	Impact	Trade-Offs
Work Order Priority	35–45%	Very High	May override travel efficiency
Travel Time	25–30%	High	May conflict with technician skill or priority
Technician Productivity	15–20%	Moderate to High	May reduce flexibility in technician assignment
Skill Matching	10–15%	Moderate	May increase travel or reduce productivity
Traffic Patterns	5–10%	Low to Moderate	May delay high-priority jobs
Resource Constraints	3–5%	Low	May limit technician options

Best Practices

- Ensure there are no null fields in your data.
- Include latitude and longitude for every resource requirement.
- Establish a default priority, with normal priority assigned to 80-90% of your work orders.
- Start with a pilot program in one territory.
- Track key performance indicators (KPIs).


Outlook
Search
Home
View
Help
Training
in 40 min
New mail
Delete
Archive
Move to
Read / Unread
Focused
Other
Other Emails (6)
Microsoft Azure; Microsoft; Microsoft on ...
This week
Pierre Hulsebus
Urgent Request
Mon 1:06 PM
Pierre Please help! One of my em...
July
Microsoft
Your Microsoft invoice ...
7/9/2025
Sign in to review your latest invoi...
G100837674.pdf
Microsoft on behalf of your orga...
You have late tasks
7/1/2025
Hi Pierre. You have 3 tasks due. Y...
June
Microsoft on behalf of your orga...
You have tasks due to...
6/30/2025
Hi Pierre. You have 3 tasks due. Y...
Microsoft on behalf of your orga...
You have upcoming t...
6/29/2025
Hi Pierre. You have 3 tasks due. Y...
Microsoft Power Automate
3 of your flow(s) have...
6/28/2025
The flow(s) listed failed in the pas...
Urgent Request
PH
Pierre Hulsebus<infuseme@gmail.com>
To: Pierre Hulsebus
Mon 10/20/2025 1:06 PM
Pierre Please help! One of my employees pulled the alarm on a hood and we are Out of Comission till you bring it back online,.
I will take care of it.
It has been reset.
I will stop by.
Reply
Forward
Field Service
Home
Work Orders
Suggested actions
Visit schedule board to create a booking. Open schedule board or reply with a proposal.
Open schedule board
Draft email based on Work Order WO01304
Details
System Status *
Unscheduled
Substatus
Priority
1_Emergency
Service account *
19696 - Contoso Southgate
Work order type *
Emergency Repair
Incident type
Save changes


Outlook
Search
Home
View
Help
Training
in 38 min
New mail
Delete
Archive
Move to
Read / Unread
Focused
Other
Other Emails (6)
Microsoft Azure; Microsoft; Microsoft on ...
This week
Pierre Hulsebus
Urgent Request
Mon 1:06 PM
Pierre Please help! One of my em...
July
Microsoft
Your Microsoft invoice ...
7/9/2025
Sign in to review your latest invoi...
G100837674.pdf
Microsoft on behalf of your orga...
You have late tasks
7/1/2025
Hi Pierre. You have 3 tasks due. Y...
June
Microsoft on behalf of your orga...
You have tasks due to...
6/30/2025
Hi Pierre. You have 3 tasks due. Y...
Microsoft on behalf of your orga...
You have upcoming t...
6/29/2025
Hi Pierre. You have 3 tasks due. Y...
Microsoft Power Automate
3 of your flow(s) have...
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Urgent Request
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To: Pierre Hulsebus
Mon 10/20/2025 1:06 PM
Pierre Please help! One of my employees pulled the alarm on a hood and we are Out of Comission till you bring it back online,.
I will take care of it.
It has been reset.
I will stop by.
Reply
Forward
Field Service
Draft with Copilot
Get AI-generated email drafts based on your input, email, and related Work Order from Dynamics 365.
Learn more
Select the type of response
Confirm schedule
Propose schedules
Dynamics 365
© Microsoft Corporation

B-159

Save | Save & Close | New | Book | Delete | Refresh | Collaborate | Share

B-159 - Saved
Work Order · Work Order

0	0	4/14/2025 3:01 PM	36936 - Contoso Perry
Price Not-To-Exceed (%)	Cost Not-To-Exceed (%)	Created on	Service account

General | Products and services | Tasks | Expenses | Reference | Timeline | Copilot | Payment | Related

Form assist

SLA Information

SLA Timers — Last update: 10/22/2025 12:34 PM

- First Reponse By - 190d 20h
- Work Order Arrival Time - 190d 13h
- Work Order Resolution Time - 189d 21h

Details

Status * Unscheduled

Priority 3_Moderate

Service account * 36936 - Contoso Perry

Project ---

Copilot

Generate

Booking suggestions

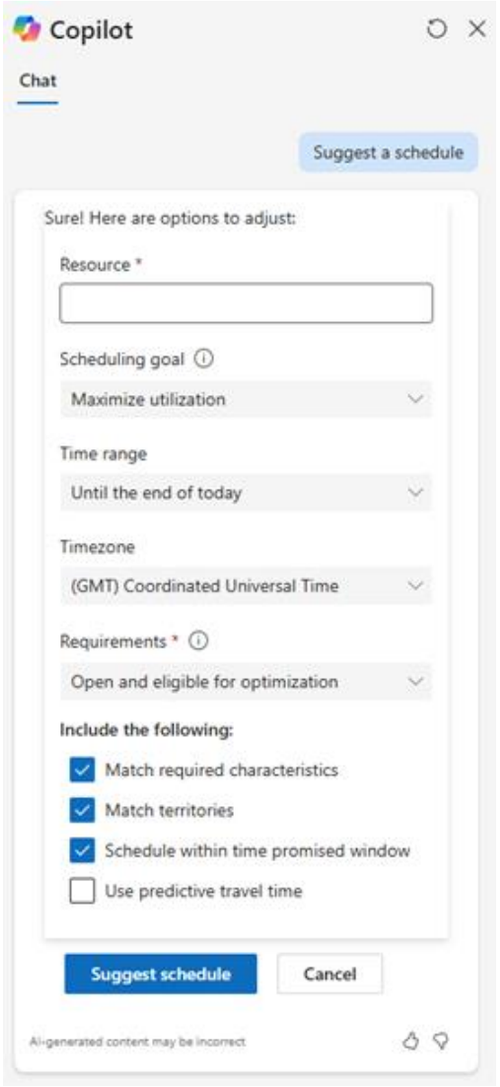
Pierre Hulsebus	Wed, Oct 22, 2025 2:00 PM - 3:00 PM 30min travel time	
Pierre Hulsebus	Fri, Oct 24, 2025 9:05 PM - 10:05 PM 1h 5min travel time	
Pierre Hulsebus	Tue, Oct 28, 2025 2:45 PM - 3:45 PM 1h 9min travel time	

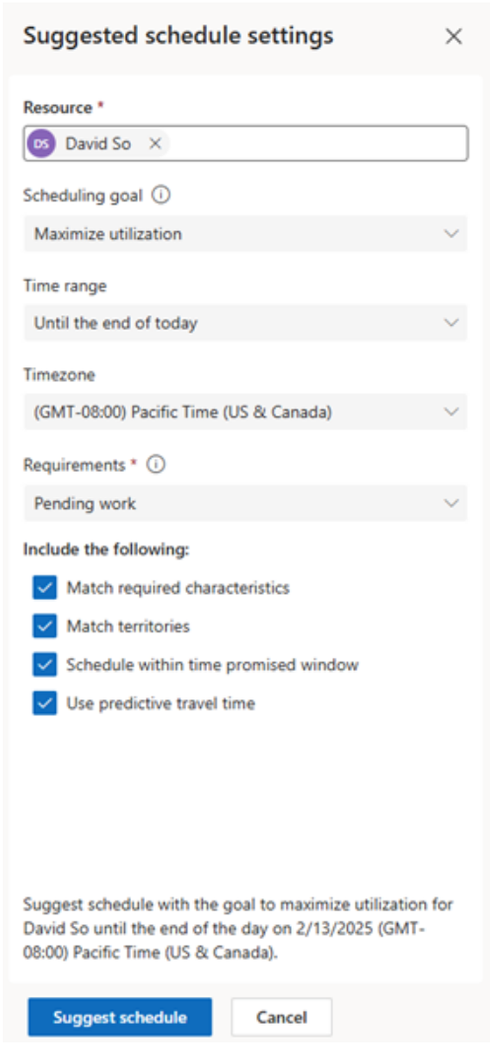
Requirements

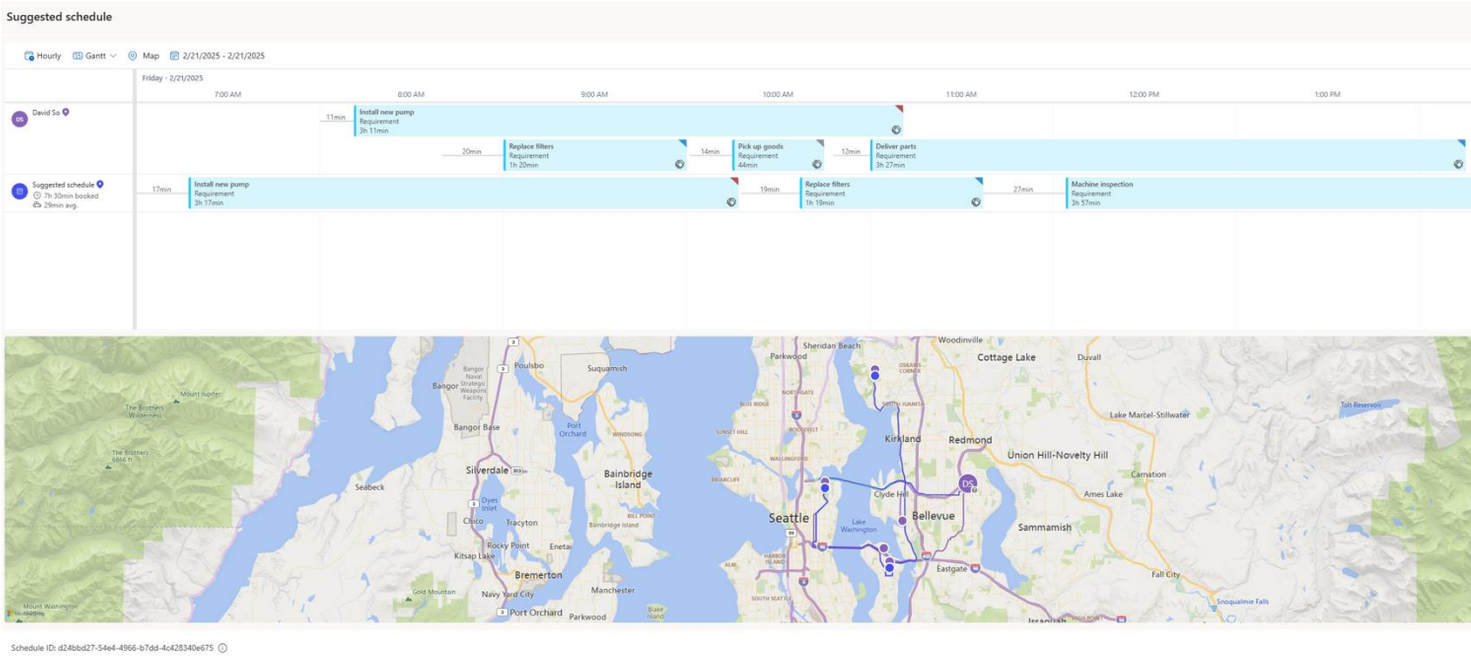
1h duration

Find availability

Use the Agent







Automating the Scheduling Process

Data In → Optimize ← Data In

Resource Requirements (e.g. Work Order)

- Onsite/ Location Agnostic
- Skills
- Territory

- Restricted Resources
- Locked Bookings
- Date/Time Windows
- Resource Type
- Priority

*Direct Correlation to Resource Attribute

RSO

- Constraints
  - Skills
  - Lock Options
  - Working Hours
  - Restricted Resources
  - Date/Time Windows
  - Travel
  - Match Resource Type
- Objectives
  - Maximize Working Hours
  - Minimize Travel Time
  - Priority
  - Preferred Resources
  - Skills

Resources (could be a technician)

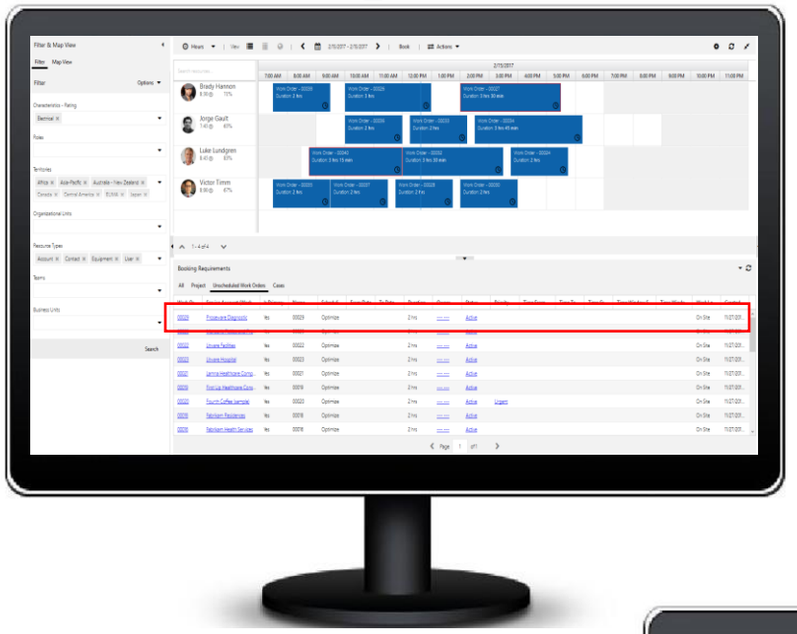
- Start and End locations Booking Locations
- Skills
- Territories

- Working Hours
- Resource Type

*Direct Correlation to Requirement Attribute

Optimal Booking Schedule per Resource

3 ways to schedule



Manual service scheduling

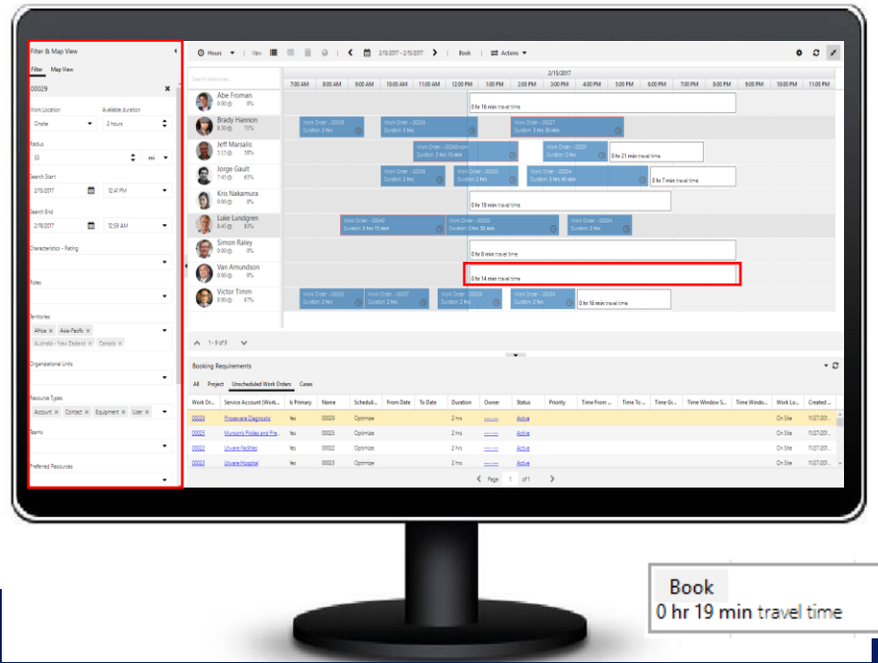
Allows you to click and drag work orders from bottom to resources on top.

Resource scheduling optimization

Evaluates routes and automatically schedules work orders to minimize travel time and maximize working hours. The “engine” also responds to reschedules and cancellations. After automatically scheduling, dispatchers still have ability to manually override schedules as needed.

Scheduling assistant

Allows you to filter resources on left by travel range, skills, dates, roles, territories and more and the system recommends available resources on right and displays estimated travel time.



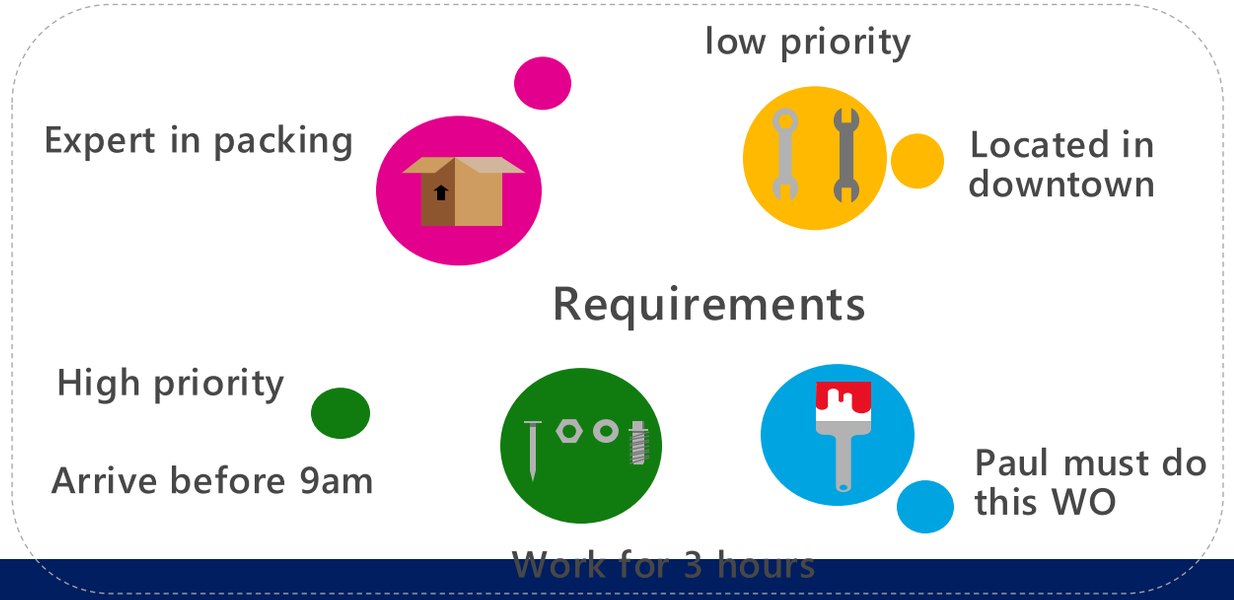
Scenario for Resource Scheduling Optimization (RSO)

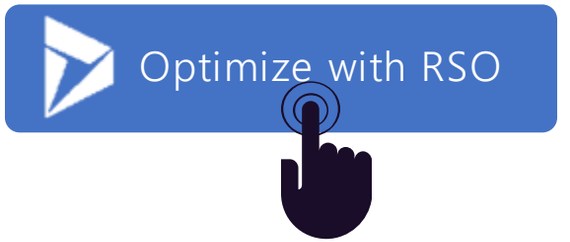
Set of **Resources:**

- Calendar with working hours
- Characteristics / Skills
- Start and End locations
- …

Set of **Requirements/Activities**:

- Time windows
- Required characteristics
- Location
- Duration
- Priority
- …





RSO's mission

Given a set of requirements demanding resources, find a schedule to optimize different objectives while constraints are met.

Constraints:

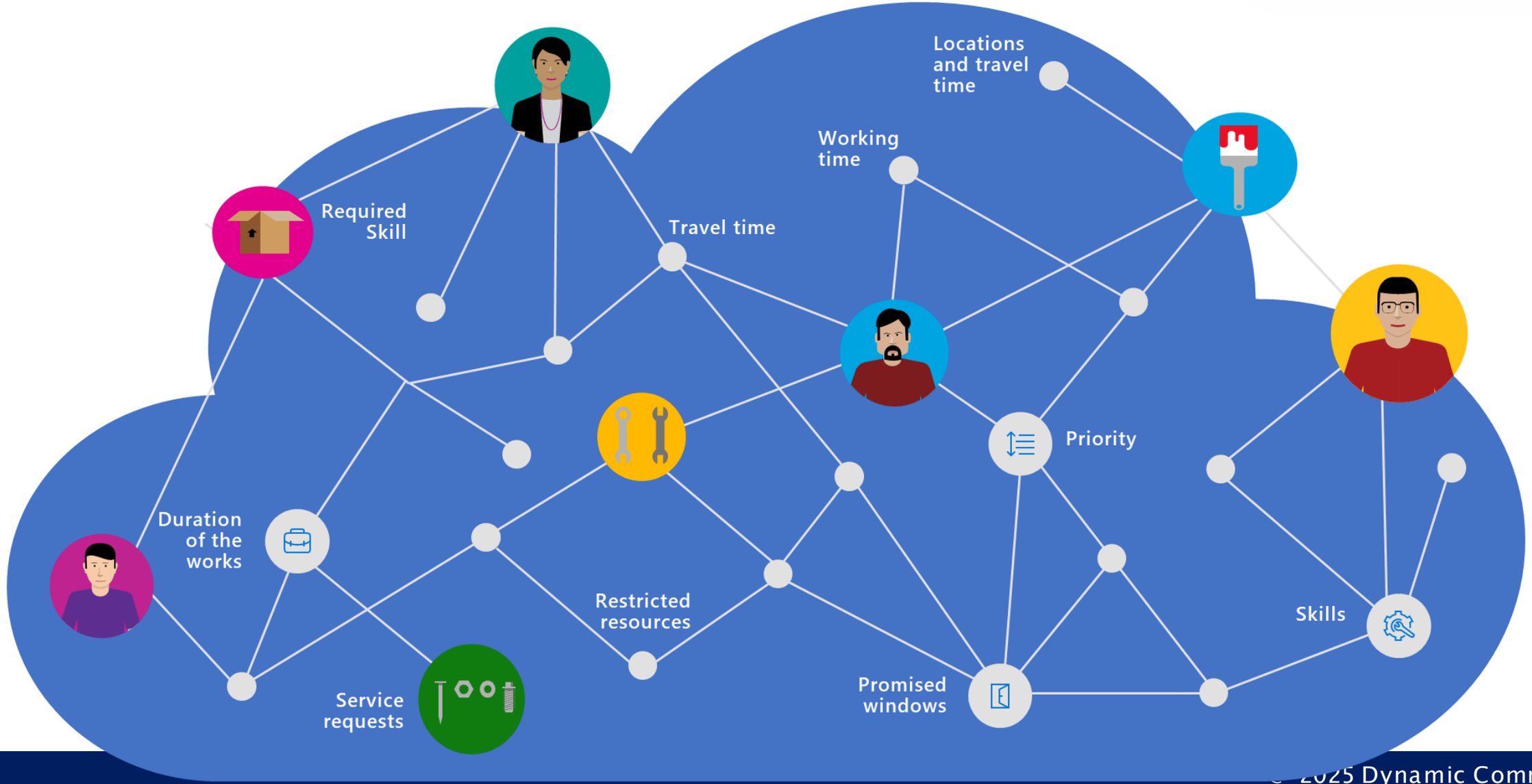
- Schedule Within Working Hours
- Meets Required Characteristics
- Meets Required Roles
- Scheduling Lock Options
- Scheduling Windows
- Meets Resource Preferences
- Matches Territories
- Matches Resource Type

Objectives:

- Maximize Total Working hours
- Schedule As Soon As Possible
- Minimize Total Travel Time
- High Priority Requirements
- Locked Bookings
- Maximize Preferred Resources
- Best Matching Skill Level

RSO's mission

Will evaluate different combinations considering the selected constraints and objectives.



How many routes need to be configured

We want to **minimize total cost** while **maximizing priority, skill match, and productivity**:

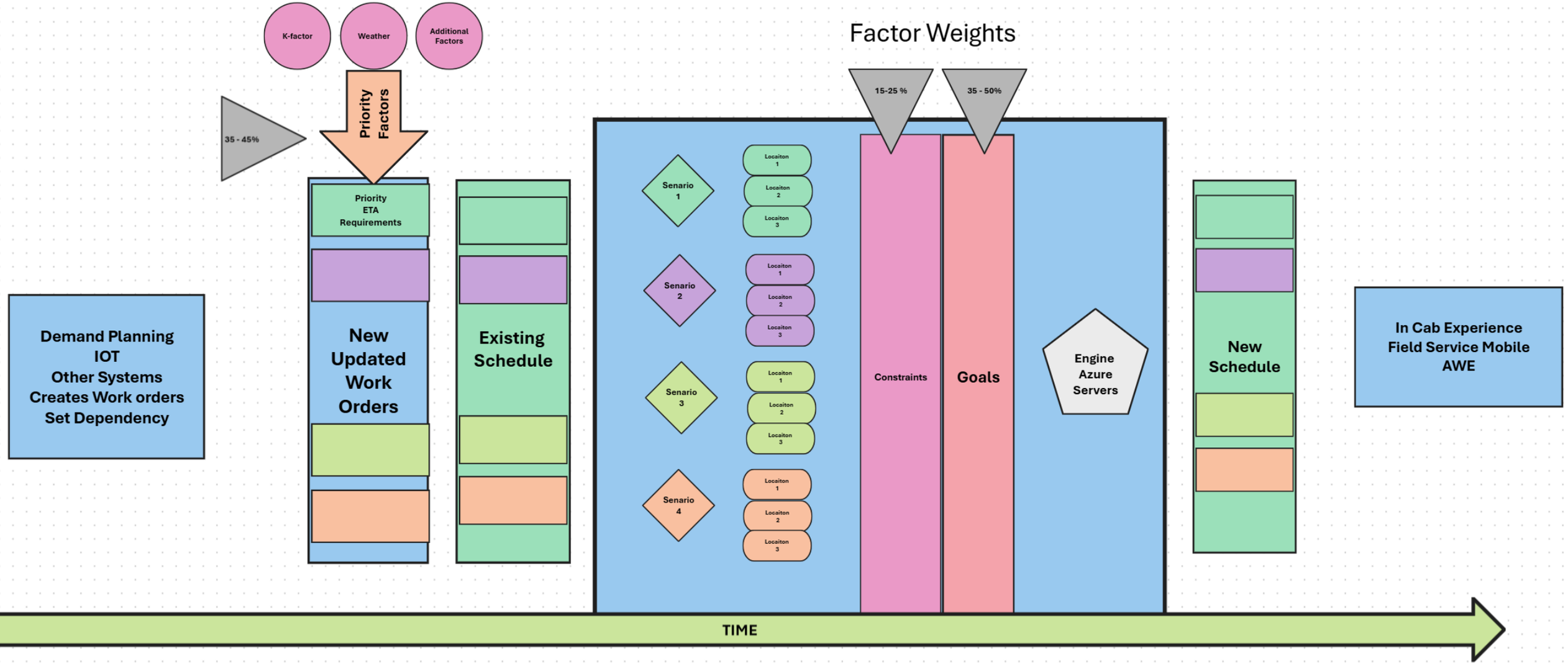
$$\text{Minimize} \sum_{k=1}^{m} \sum_{i=1}^{n} \sum_{j=1}^{n} (\alpha \cdot d_{ij} - \beta \cdot p_i \cdot x_{ijk} - \gamma \cdot s_{ik} \cdot x_{ijk} - \delta \cdot u_k \cdot x_{ijk})$$

- **50 work orders daily *(10 Per Tech)***
- **350 work orders per week**

Even with **just travel time** as a factor, the number of possible route combinations for one technician are:

10! = 3,628,800 possible sequences

Across 5 technicians: $\mathbf{(10!)^5 \approx 10^{31}}$ **combinations**



Pierre Hulsebus

Dispatch Reviews and Adjusts Schedule Engine

Pierre Hulsebus

Schedulers review and Manage Jobs
Manage Errors

Pierre Hulsebus

Dispatch Reviews New Schedule
Adds and Approves Time Off Requests
Changes Schedule to accomidate Customer demands

Pierre Hulsebus

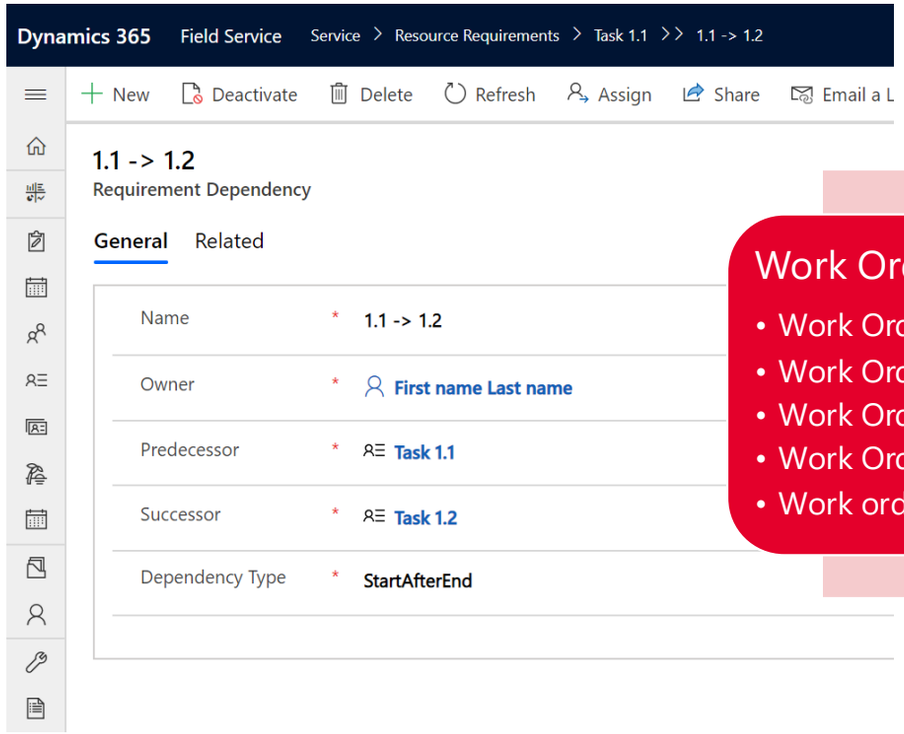
Driver
FSM
Or AWE
GPS In Cab with Hazardous Turn Accomidations

- Effective scheduling and resource optimization are the secret sauce to maximizing service efficiency, slashing costs, and making customers smile. In this session, we'll dive into the cool world of advanced scheduling techniques within Dynamics 365 Field Service Dynamics CE's Universal Resource Scheduling, and Resource Scheduling Optimization, and Copilot Scheduling. We will be including AI-driven scheduling, resource balancing, and travel time minimization. We will spill the beans on how to leverage resource optimization algorithms, predictive analytics, and automation to supercharge service delivery and boost those all-important first-time fix rates. Get ready to uncover the best practices for tackling complex scheduling scenarios and making the most out of your resources for peak performance.
- Join us on a journey to master advanced scheduling and resource optimization techniques within Dynamics 365 Field Service. We'll equip you with the knowledge and practical insights needed to harness AI-driven scheduling, resource balancing, and travel time minimization to supercharge service efficiency and customer satisfaction. Through expert discussions, real-world examples, and inspiring success stories, you'll gain actionable strategies to implement advanced scheduling and resource optimization solutions in your field service management practice

After Goal and Constraint #4 the impact of each factor is in the Single Digits

Factor	Weight Range	Impact	Trade-Offs
Work Order Priority	35–45%	Very High	May override travel efficiency
Travel Time	25–30%	High	May conflict with technician skill or priority
Technician Productivity	15–20%	Moderate to High	May reduce flexibility in technician assignment
Skill Matching	10–15%	Moderate	May increase travel or reduce productivity
Traffic Patterns	5–10%	Low to Moderate	May delay high-priority jobs
Resource Constraints	3–5%	Low	May limit technician options

Work Order Bundling



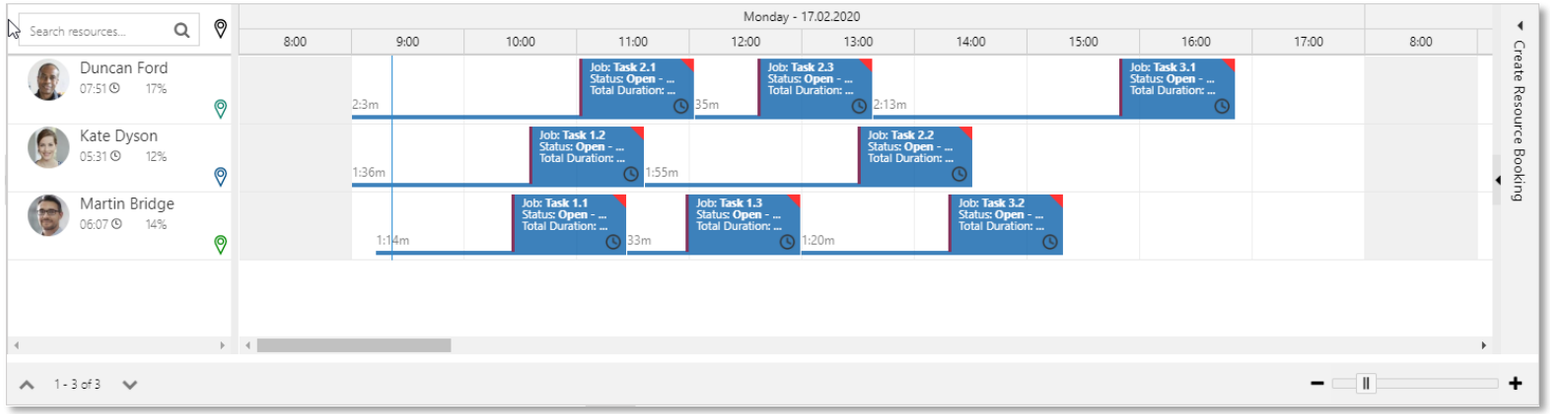
Work Orders Created with Dependency

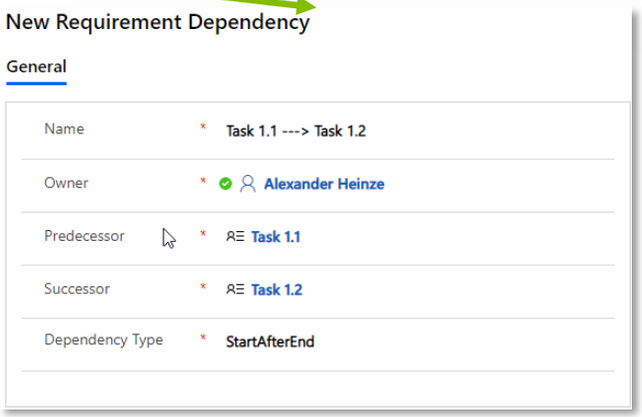
- Work Order 1
- Work Order 2
- Work Order 3
- Work Order 4
- Work order 5 (drive home)

Scheduling Engine Runs

Requirement Dependencies

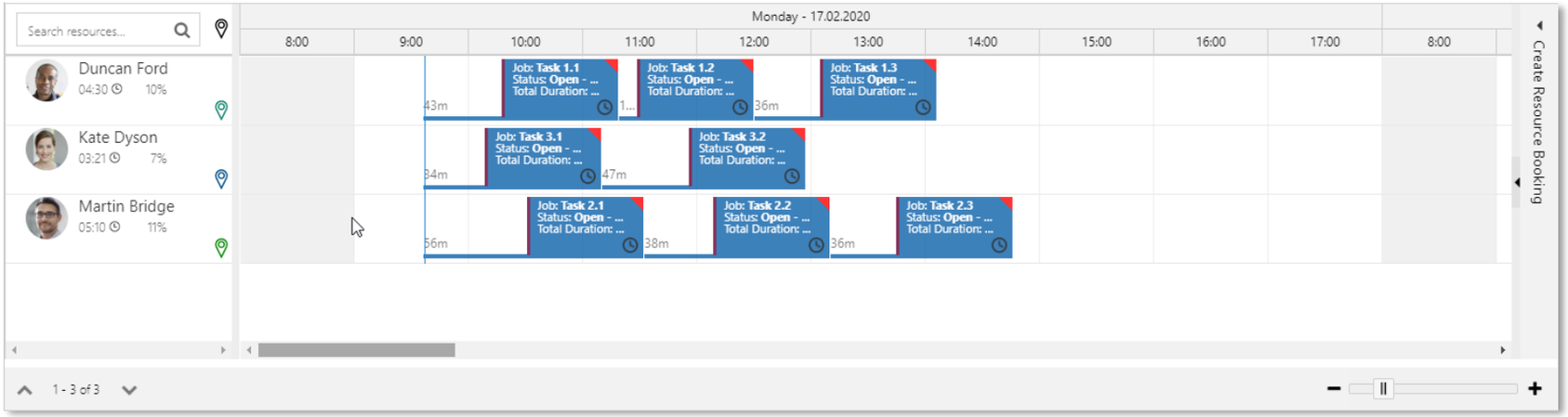
Multiple similar dependencies defined for this example.





Before

After



Requirement Dependencies: Lets you schedule requirements in a specific order by defining a predecessor/successor dependency relationship.

Constraint: This is an implicit constraint. As of now the only supported dependency is "start 1.2 after 1.1 is finished". All dependent requirements need to be scheduled to the **same resource** on the **same day**. Generated bookings do not have to be adjacent, i.e. you could see 1.1 → <another job> → 1.2 → <another job> → 1.3

Set Up System

Set Up Billing

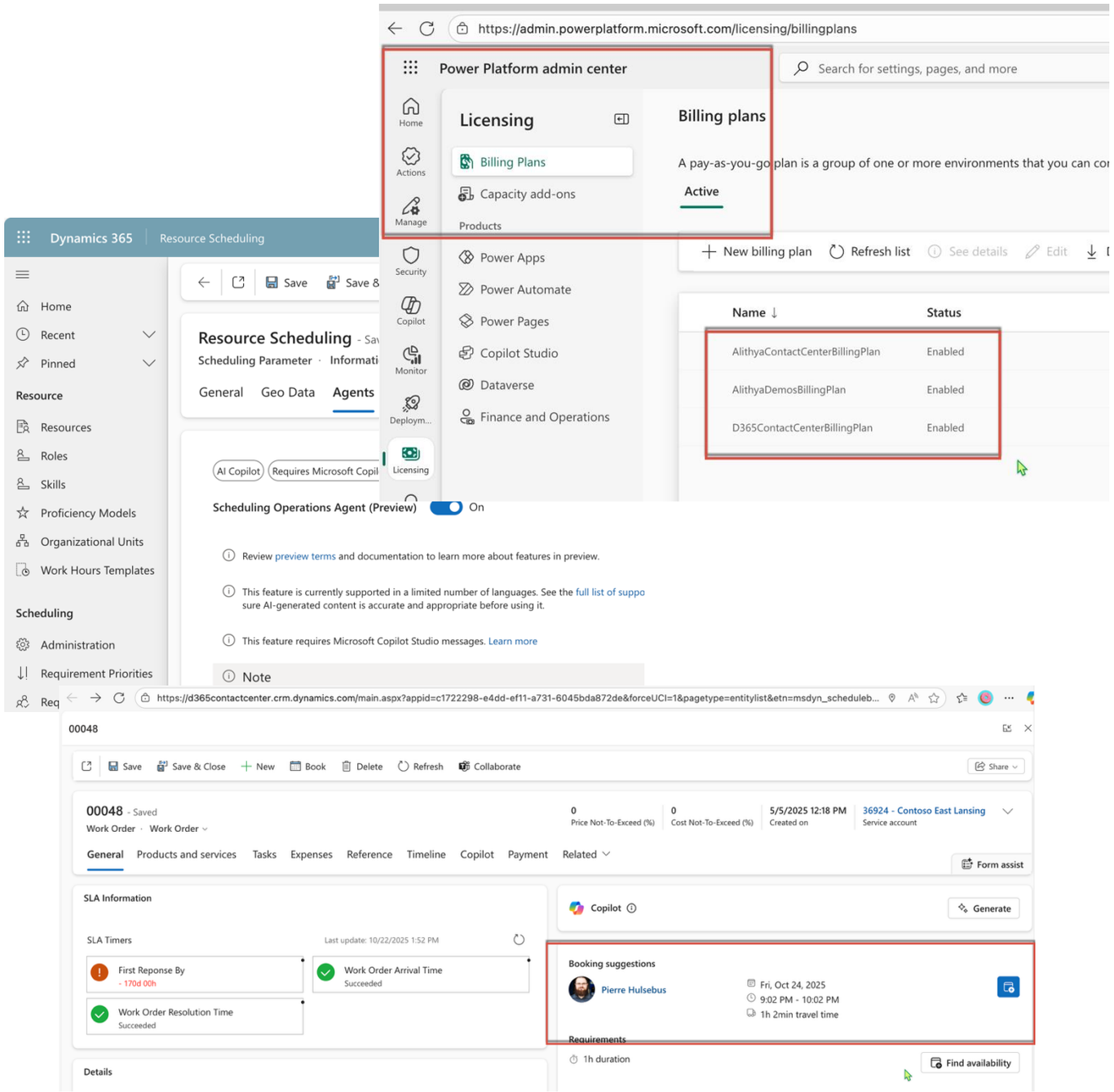
- Copilot Studio

Configure Setting

- Dynamics Resource

Test

- Schedule Board
- Copilot

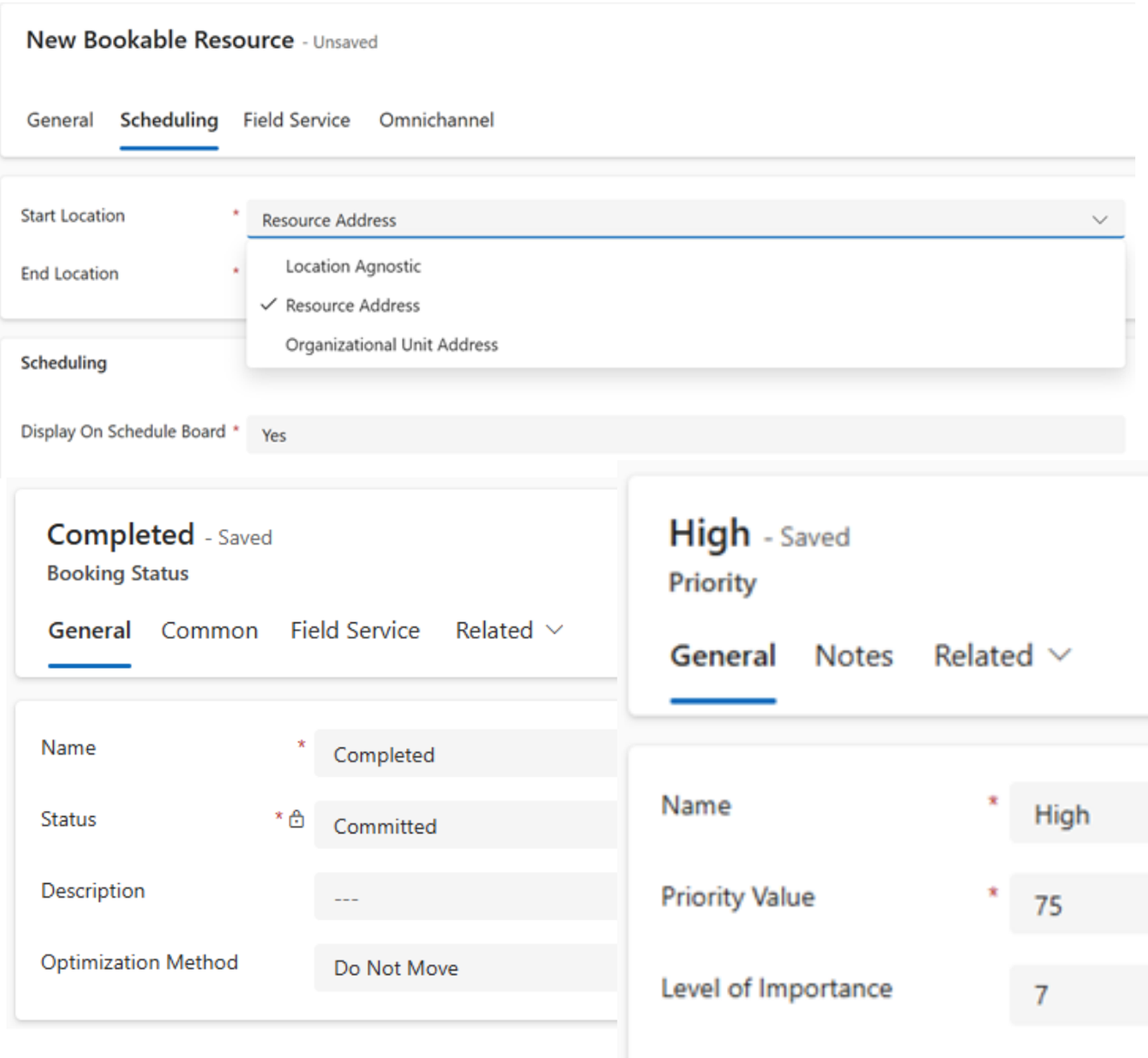


Metadata Configuration

Set Bookable Resources To Optimize (Not Location Agnostic)

Set Optimization for Booking Methods

Set Priority



Operational Readiness

It doesn't support resources of type *Account*, *Equipment*, *Pool*, and *Facility*. The agent supports *User*, *Contact*, or *Crew* resources only.

The resource must not be part of a crew during the entire optimization range.

The resource can have up to three breaks during their work day or shift. With four or more breaks, the agent returns an error.

The agent doesn't consider a requirement's fulfillment preferences or partially fulfilled resource requirements.

The agent needs to run when the resource is available for work. The resource can't be on break, off work, or traveling to or working on a booking.

Optimization Logic and KPI Alignment

Conflicting optimization goals

- Maximizing utilization can conflict with minimizing travel time or prioritizing SLAs.

Dynamic business rules

- Constantly changing priorities (emergencies, customer cancellations) require adaptive logic and retraining users to **recalibrate** the agent.

Insufficient feedback loops

- Without ongoing performance review (e.g., comparing AI vs manual results), **optimization** quality declines over time.

Governance & Continuous Improvement

Auditability and explainability

- Executives often ask: *"Why did the system schedule it that way?"* — requiring transparent rules and audit trails.

Monitoring KPIs post-implementation

- Success depends on tracking key metrics: utilization rate, average travel time, first-time fix rate, and response time.

Iterative tuning required

- Scheduling models improve only with iterative feedback, not a one-time deployment.

Change Management & Human Adoption

Dispatcher trust and control

- Dispatchers may resist “automation” if they feel replaced rather than augmented. Success requires framing the agent as a *co-pilot*—not an autopilot.

Technician acceptance

- Crews often prefer familiar patterns; changes to routes or sequencing can create friction without clear communication of benefits.

Training and process alignment

- Teams must learn how optimization goals and parameters affect outcomes.

Cultural shift to AI-assisted decision-making

- Moving from reactive scheduling to proactive automation requires new habits and accountability models.