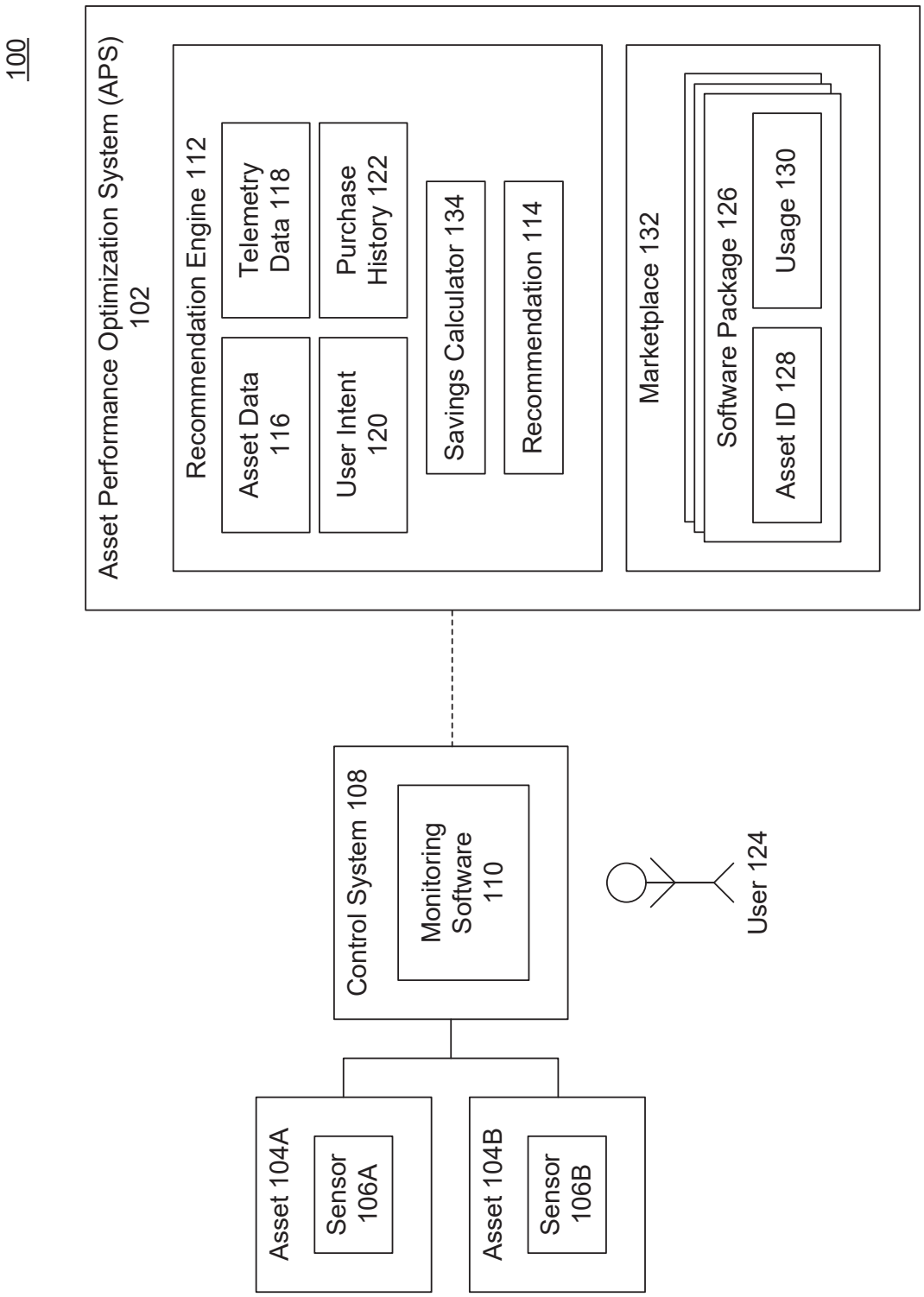

100
Asset Performance Optimization System (APS)
102
Recommendation Engine 112
Asset Data 116
Telemetry Data 118
User Intent 120
Purchase History 122
Savings Calculator 134
Recommendation 114
Marketplace 132
Software Package 126
Asset ID 128
Usage 130
Control System 108
Monitoring Software 110
User 124
Asset 104A
Sensor 106A
Asset 104B
Sensor 106B

FIG. 1

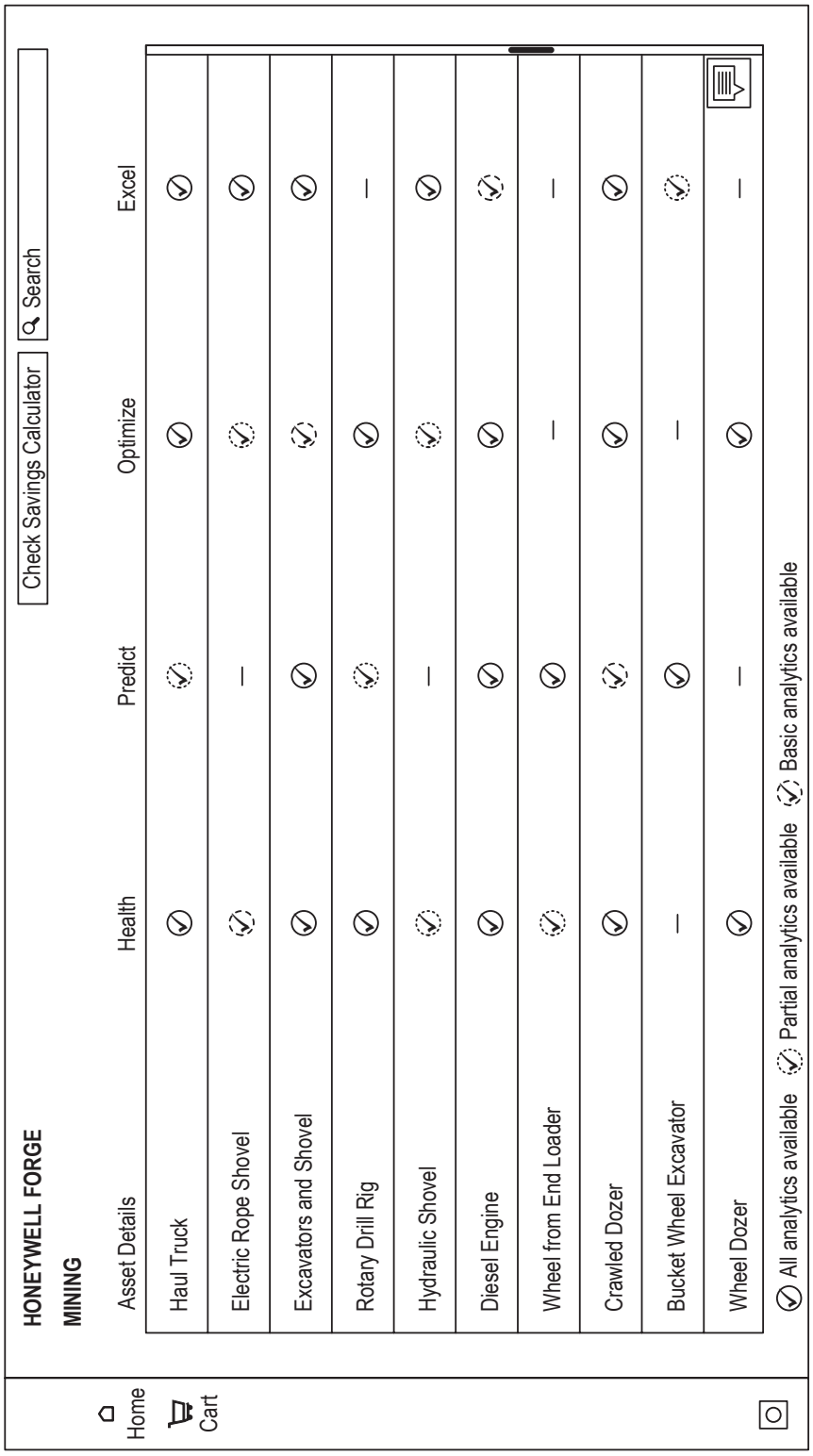

200
HONEYWELL FORGE
MINING
Check Savings Calculator
Search
Home
Cart
Asset Details
Health
Predict
Optimize
Excel
Haul Truck
Electric Rope Shovel
Excavators and Shovel
Rotary Drill Rig
Hydraulic Shovel
Diesel Engine
Wheel from End Loader
Crawled Dozer
Bucket Wheel Excavator
Wheel Dozer
All analytics available
Partial analytics available
Basic analytics available

FIG. 2

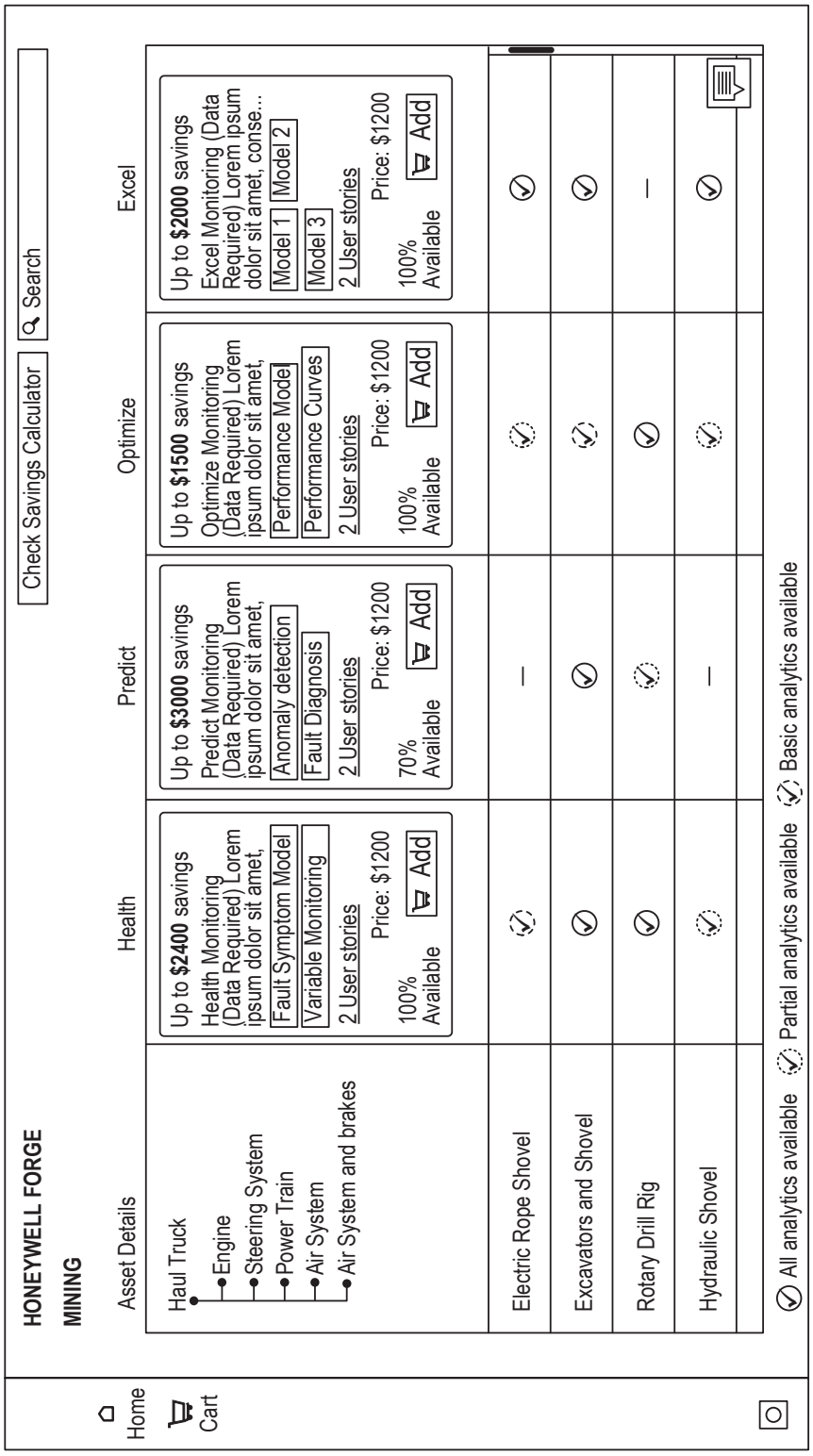

300
Home
Cart
HONEYWELL FORGE
MINING
Check Savings Calculator
Search
Asset Details
Health
Predict
Optimize
Excel
Haul Truck
Engine
Steering System
Power Train
Air System
Air System and brakes
Up to $2400 savings
Health Monitoring (Data Required) Lorem ipsum dolor sit amet,
Fault Symptom Model
Variable Monitoring
2 User stories
Price: $1200
100% Available
Add
Up to $3000 savings
Predict Monitoring (Data Required) Lorem ipsum dolor sit amet,
Anomaly detection
Fault Diagnosis
2 User stories
Price: $1200
70% Available
Add
Up to $1500 savings
Optimize Monitoring (Data Required) Lorem ipsum dolor sit amet,
Performance Model
Performance Curves
2 User stories
Price: $1200
100% Available
Add
Up to $2000 savings
Excel Monitoring (Data Required) Lorem ipsum dolor sit amet, conse...
Model 1
Model 2
Model 3
2 User stories
Price: $1200
100% Available
Add
Electric Rope Shovel
Excavators and Shovel
Rotary Drill Rig
Hydraulic Shovel
All analytics available
Partial analytics available
Basic analytics available

FIG. 3

400

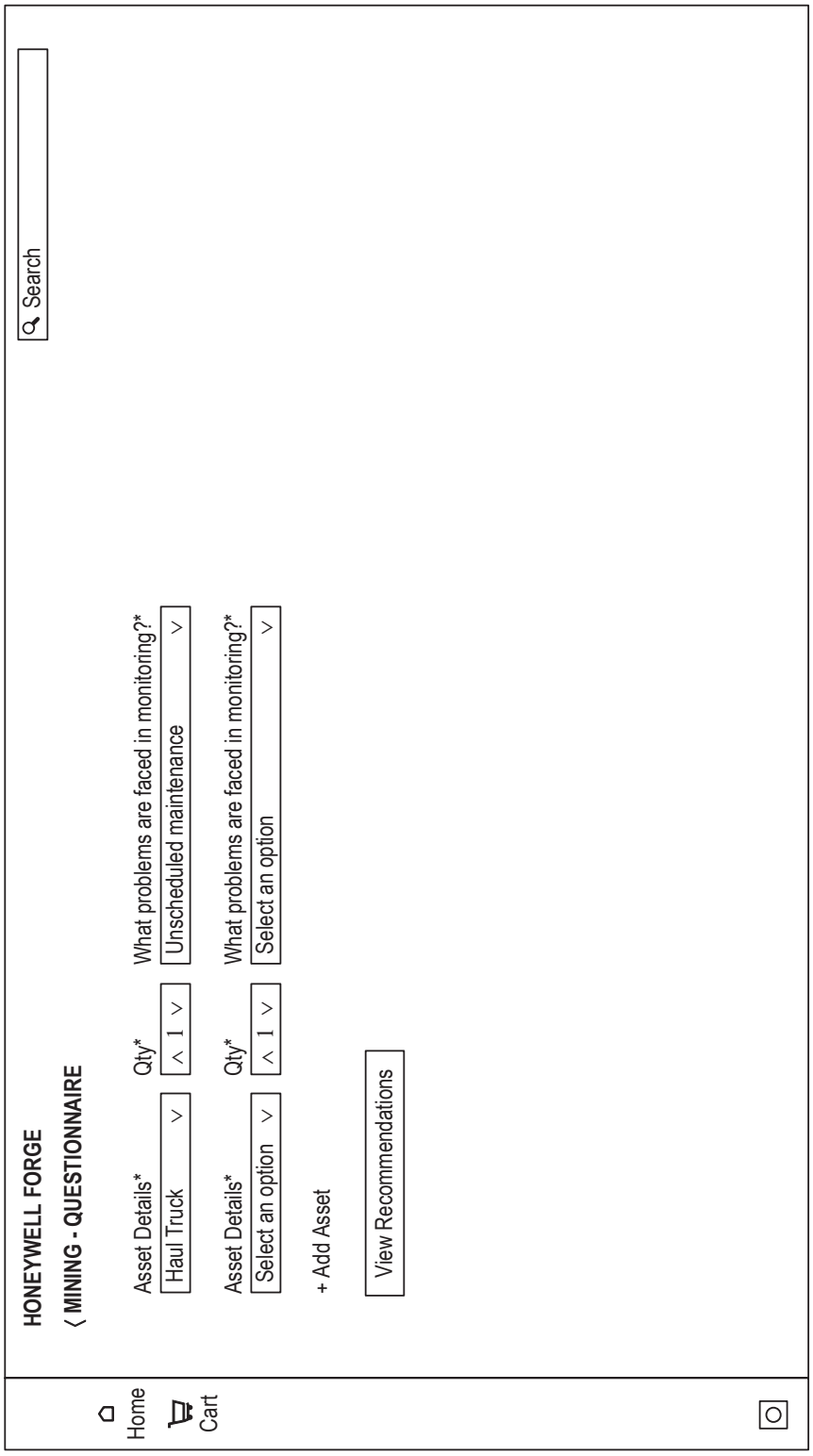

HONEYWELL FORGE
〈 MINING - QUESTIONNAIRE
Search
Home
Cart
Asset Details*
Haul Truck
Qty*
1
What problems are faced in monitoring?*
Unscheduled maintenance
Asset Details*
Select an option
Qty*
1
What problems are faced in monitoring?*
Select an option
+ Add Asset
View Recommendations

FIG. 4

500

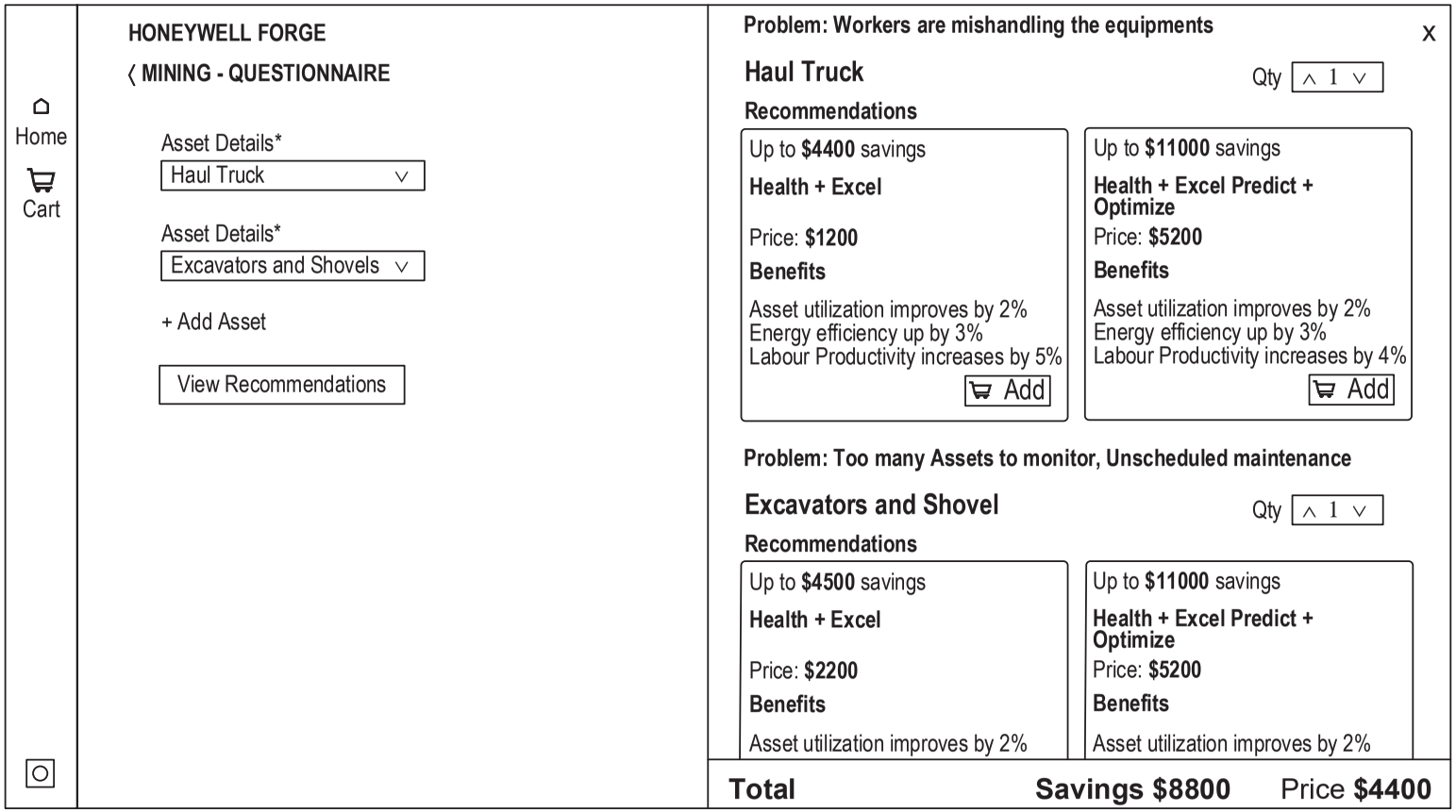

HONEYWELL FORGE
〈 MINING - QUESTIONNAIRE
Home
Cart
Asset Details*
Haul Truck
Asset Details*
Excavators and Shovels
+ Add Asset
View Recommendations
Problem: Workers are mishandling the equipments
x
Haul Truck
Qty 1
Recommendations
Up to $4400 savings
Health + Excel
Price: $1200
Benefits
Asset utilization improves by 2%
Energy efficiency up by 3%
Labour Productivity increases by 5%
Add
Up to $11000 savings
Health + Excel Predict + Optimize
Price: $5200
Benefits
Asset utilization improves by 2%
Energy efficiency up by 3%
Labour Productivity increases by 4%
Add
Problem: Too many Assets to monitor, Unscheduled maintenance
Excavators and Shovel
Qty 1
Recommendations
Up to $4500 savings
Health + Excel
Price: $2200
Benefits
Asset utilization improves by 2%
Up to $11000 savings
Health + Excel Predict + Optimize
Price: $5200
Benefits
Asset utilization improves by 2%
Total
Savings $8800
Price $4400

FIG. 5

600

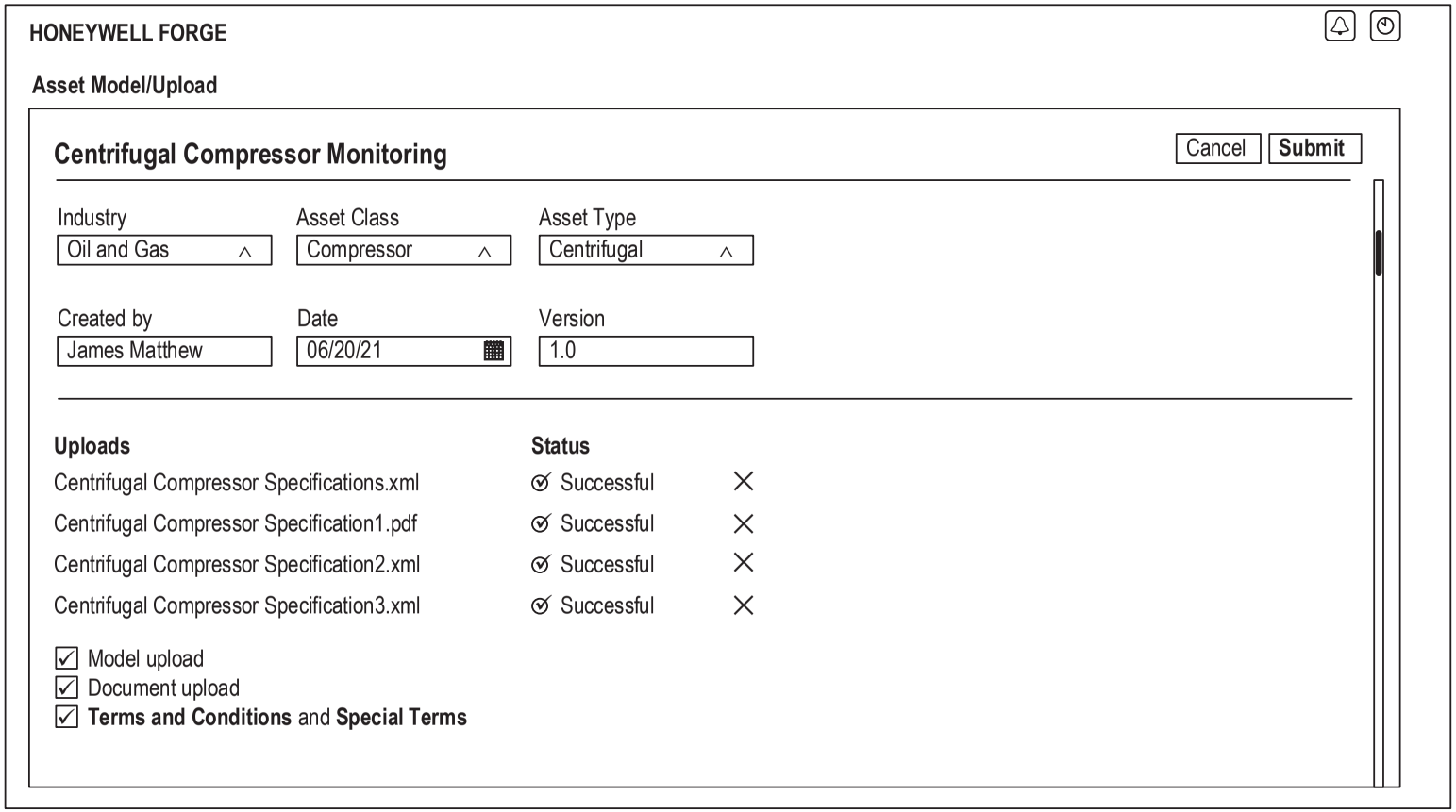

HONEYWELL FORGE
Asset Model/Upload
Centrifugal Compressor Monitoring
Cancel
Submit
Industry
Oil and Gas
Asset Class
Compressor
Asset Type
Centrifugal
Created by
James Matthew
Date
06/20/21
Version
1.0
Uploads
Status
Centrifugal Compressor Specifications.xml
Successful
Centrifugal Compressor Specification1.pdf
Successful
Centrifugal Compressor Specification2.xml
Successful
Centrifugal Compressor Specification3.xml
Successful
Model upload
Document upload
Terms and Conditions and Special Terms

FIG. 6

700

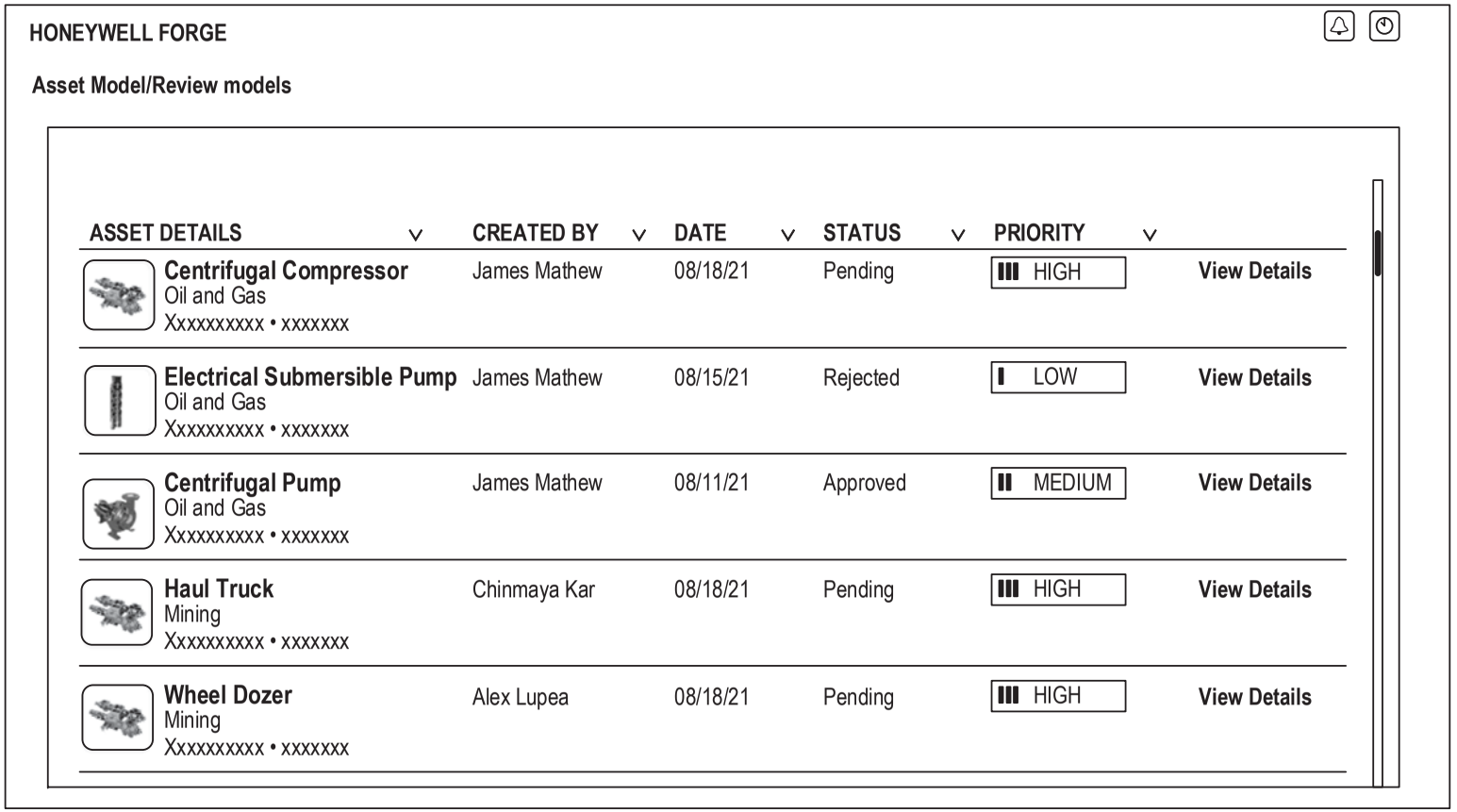

HONEYWELL FORGE
Asset Model/Review models
ASSET DETAILS
CREATED BY
DATE
STATUS
PRIORITY
Centrifugal Compressor
Oil and Gas
Xxxxxxxxx • xxxxxx
James Mathew
08/18/21
Pending
HIGH
View Details
Electrical Submersible Pump
Oil and Gas
Xxxxxxxxx • xxxxxx
James Mathew
08/15/21
Rejected
LOW
View Details
Centrifugal Pump
Oil and Gas
Xxxxxxxxx • xxxxxx
James Mathew
08/11/21
Approved
MEDIUM
View Details
Haul Truck
Mining
Xxxxxxxxx • xxxxxx
Chinmaya Kar
08/18/21
Pending
HIGH
View Details
Wheel Dozer
Mining
Xxxxxxxxx • xxxxxx
Alex Lupea
08/18/21
Pending
HIGH
View Details

FIG. 7

800

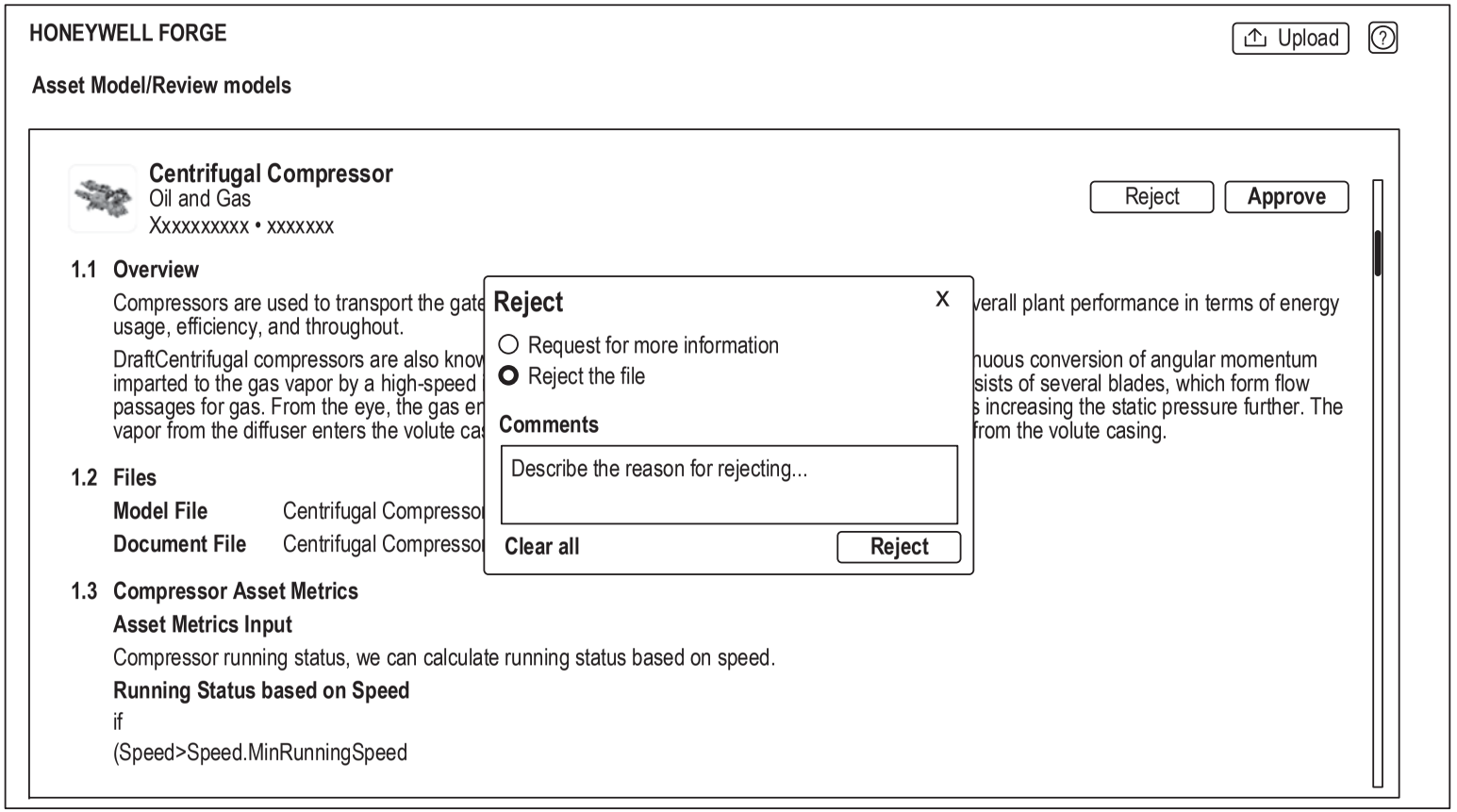

HONEYWELL FORGE
Upload
Asset Model/Review models
Centrifugal Compressor
Oil and Gas
Xxxxxxxxxx • xxxxxxx
Reject
Approve
1.1 Overview
Compressors are used to transport the gate
verall plant performance in terms of energy
usage, efficiency, and throughout.
DraftCentrifugal compressors are also know
nuous conversion of angular momentum
imparted to the gas vapor by a high-speed
sists of several blades, which form flow
passages for gas. From the eye, the gas er
increasing the static pressure further. The
vapor from the diffuser enters the volute ca
from the volute casing.
1.2 Files
Model File
Centrifugal Compresso
Document File
Centrifugal Compresso
1.3 Compressor Asset Metrics
Asset Metrics Input
Compressor running status, we can calculate running status based on speed.
Running Status based on Speed
if
(Speed>Speed.MinRunningSpeed
Reject
X
Request for more information
Reject the file
Comments
Describe the reason for rejecting...
Clear all
Reject

FIG. 8

900

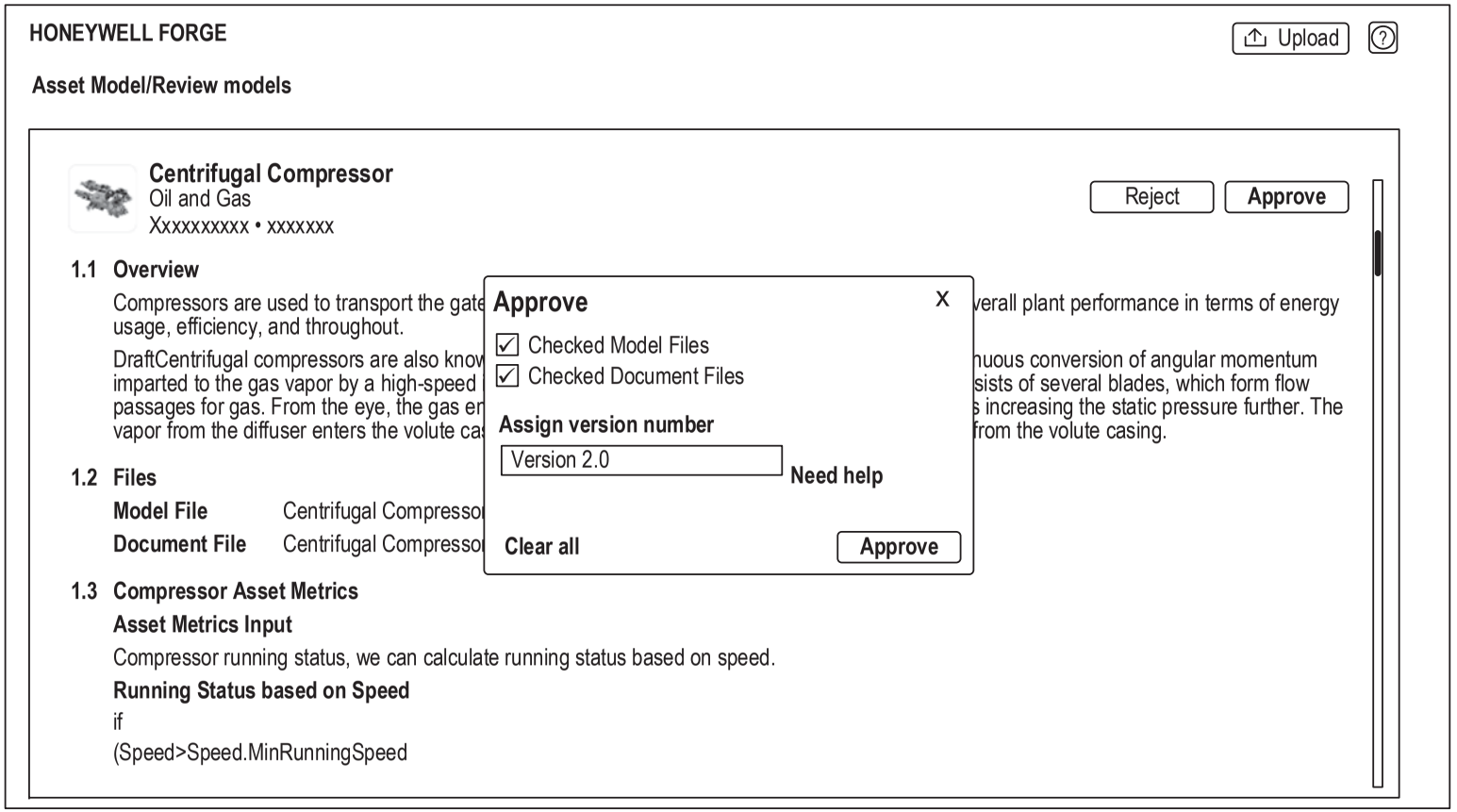

HONEYWELL FORGE
Upload
Asset Model/Review models
Centrifugal Compressor
Oil and Gas
Xxxxxxxxxx • xxxxxxx
Reject
Approve
1.1 Overview
Compressors are used to transport the gate
usage, efficiency, and throughout.
DraftCentrifugal compressors are also know
imparted to the gas vapor by a high-speed
passages for gas. From the eye, the gas er
vapor from the diffuser enters the volute ca
verall plant performance in terms of energy
nuous conversion of angular momentum
sists of several blades, which form flow
s increasing the static pressure further. The
from the volute casing.
Approve
X
Checked Model Files
Checked Document Files
Assign version number
Version 2.0
Need help
Clear all
Approve
1.2 Files
Model File
Centrifugal Compresso
Document File
Centrifugal Compresso
1.3 Compressor Asset Metrics
Asset Metrics Input
Compressor running status, we can calculate running status based on speed.
Running Status based on Speed
if
(Speed>Speed.MinRunningSpeed

FIG. 9

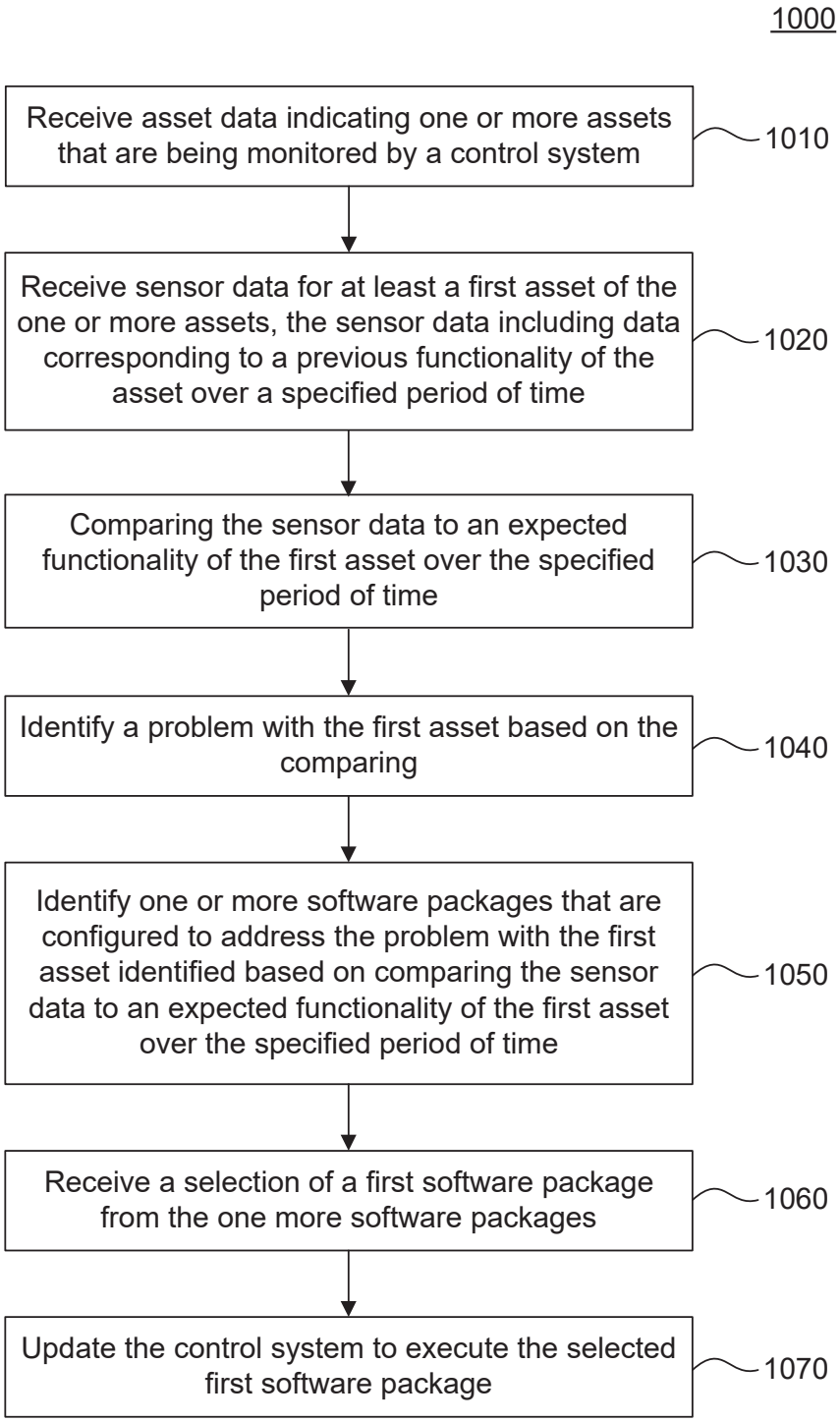

1000
Receive asset data indicating one or more assets that are being monitored by a control system
1010
Receive sensor data for at least a first asset of the one or more assets, the sensor data including data corresponding to a previous functionality of the asset over a specified period of time
1020
Comparing the sensor data to an expected functionality of the first asset over the specified period of time
1030
Identify a problem with the first asset based on the comparing
1040
Identify one or more software packages that are configured to address the problem with the first asset identified based on comparing the sensor data to an expected functionality of the first asset over the specified period of time
1050
Receive a selection of a first software package from the one more software packages
1060
Update the control system to execute the selected first software package
1070

FIG. 10

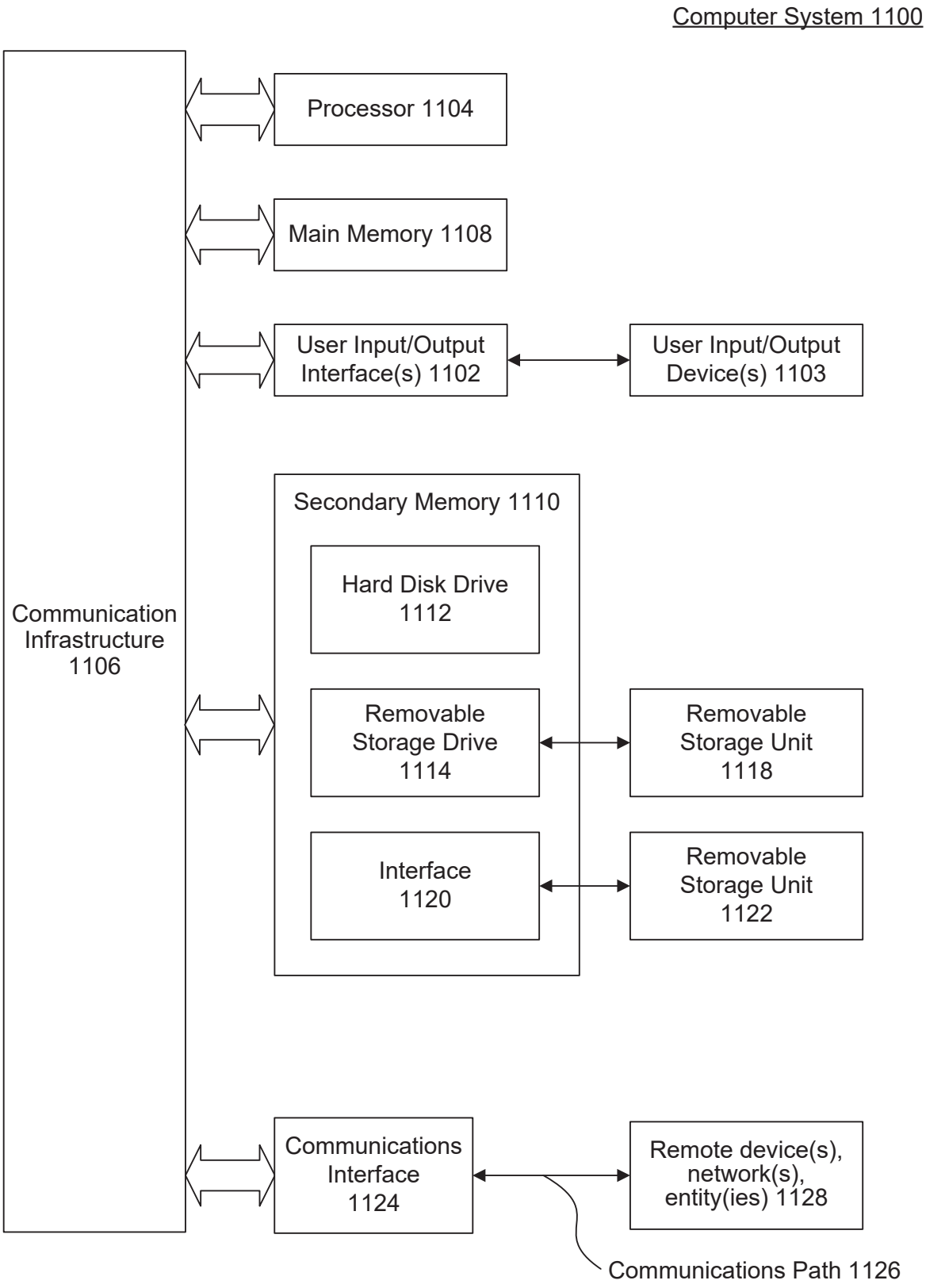

Computer System 1100
Processor 1104
Main Memory 1108
User Input/Output Interface(s) 1102
User Input/Output Device(s) 1103
Secondary Memory 1110
Hard Disk Drive 1112
Removable Storage Drive 1114
Removable Storage Unit 1118
Interface 1120
Removable Storage Unit 1122
Communication Infrastructure 1106
Communications Interface 1124
Remote device(s), network(s), entity(ies) 1128
Communications Path 1126

FIG. 11

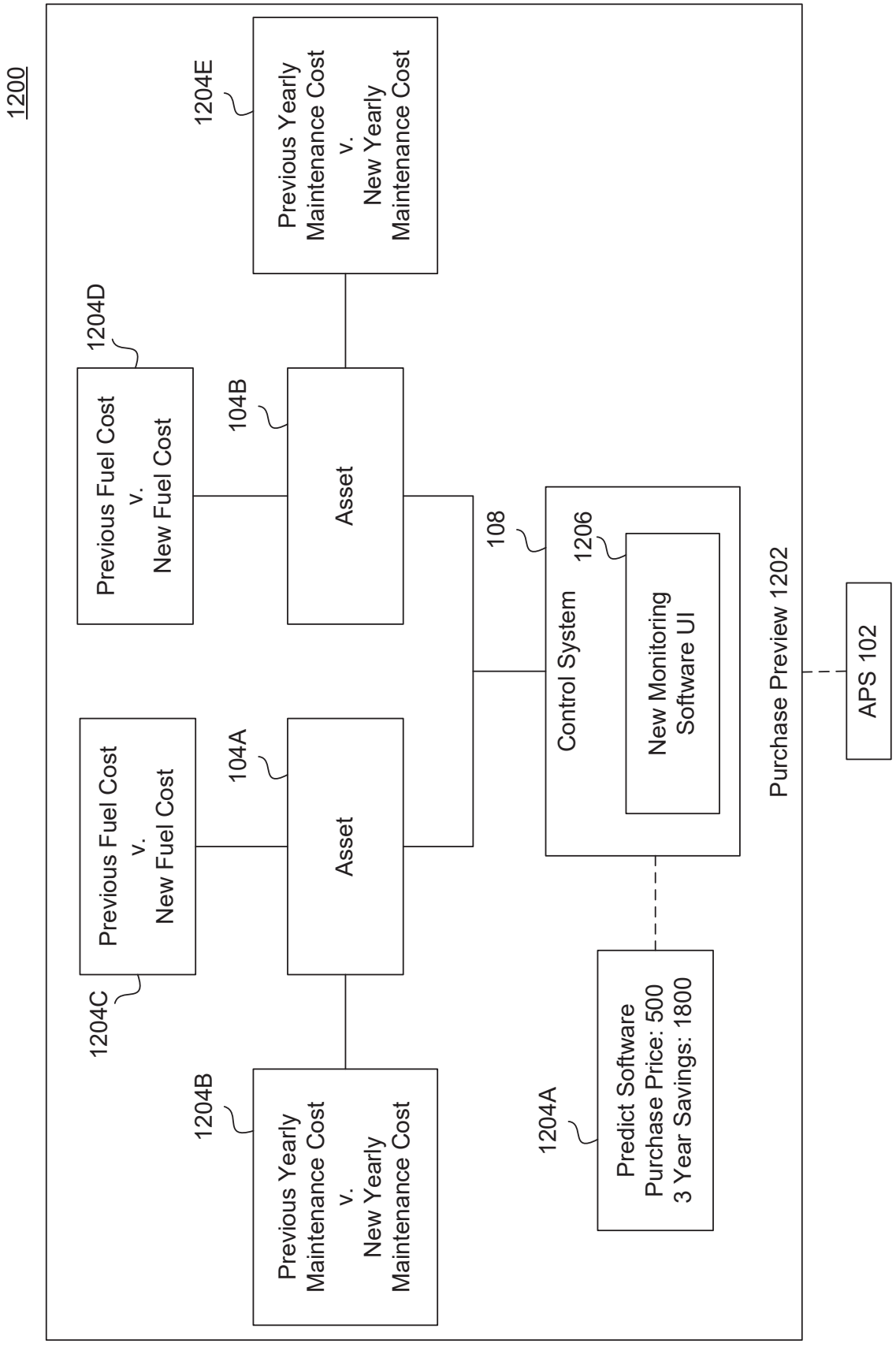

1200
1204E
Previous Yearly Maintenance Cost v. New Yearly Maintenance Cost
1204D
Previous Fuel Cost v. New Fuel Cost
104B
Asset
108
Control System
1206
New Monitoring Software UI
Purchase Preview 1202
APS 102
104A
Asset
Previous Fuel Cost v. New Fuel Cost
1204C
1204B
Previous Yearly Maintenance Cost v. New Yearly Maintenance Cost
1204A
Predict Software Purchase Price: 500 3 Year Savings: 1800

FIG. 12

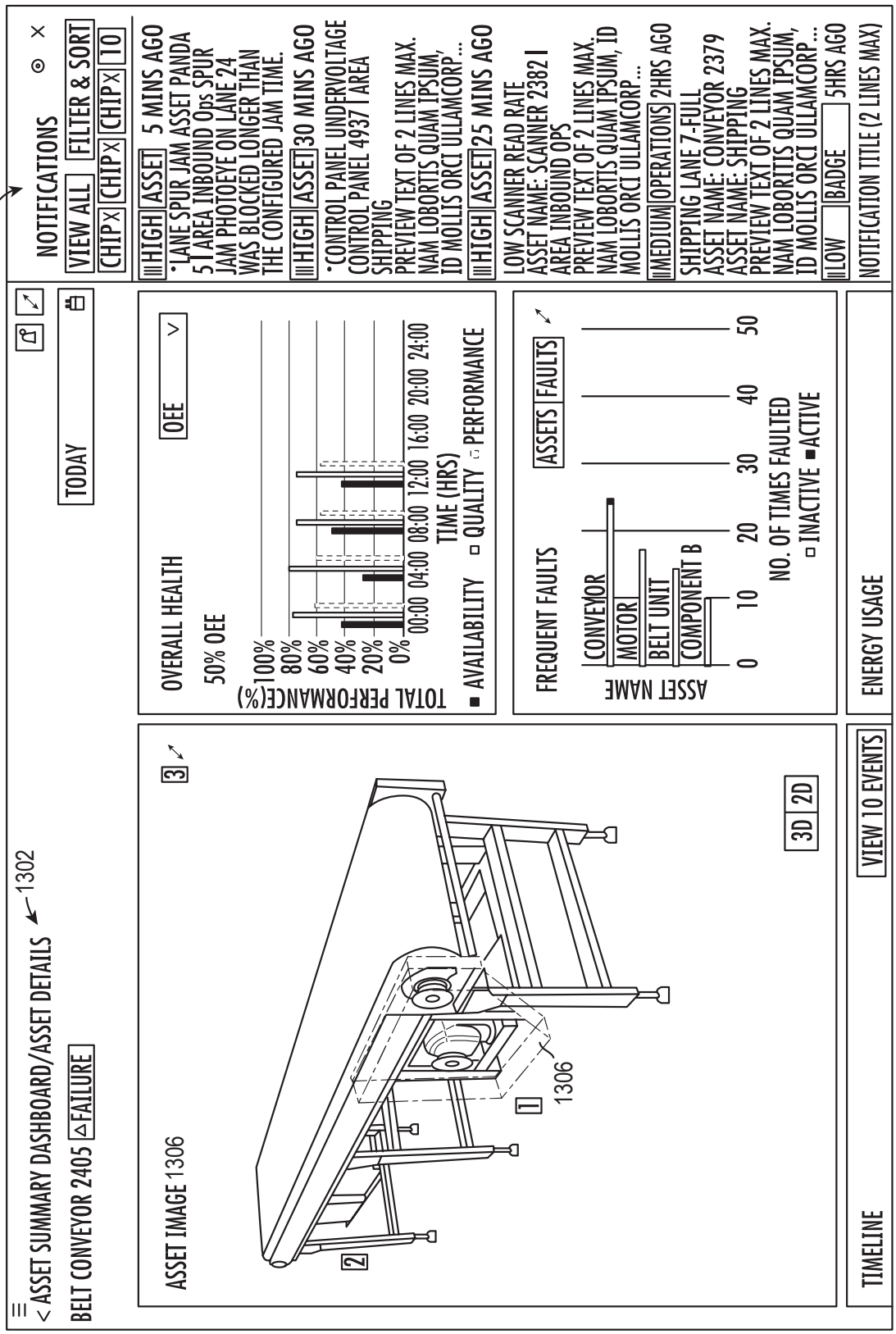

1300
1304
1302
1306
NOTIFICATIONS
VIEW ALL
FILTER & SORT
CHIP X
CHIP X
CHIP X
10
HIGH
ASSET
5 MINS AGO
LANE SPUR JAM ASSET PANDA 51 AREA INBOUND Ops SPUR JAM PHOTOEYE ON LANE 24 WAS BLOCKED LONGER THAN THE CONFIGURED JAM TIME.
HIGH
ASSET
30 MINS AGO
CONTROL PANEL UNDERVOLTAGE CONTROL PANEL 4937 I AREA SHIPPING
PREVIEW TEXT OF 2 LINES MAX. NAM LOBORTIS QUAM IPSUM, ID MOLLIS ORCI ULLAMCORP...
HIGH
ASSET
25 MINS AGO
LOW SCANNER READ RATE ASSET NAME: SCANNER 2382 I AREA INBOUND OPS
PREVIEW TEXT OF 2 LINES MAX. NAM LOBORTIS QUAM IPSUM, ID MOLLIS ORCI ULLAMCORP...
MEDIUM
OPERATIONS
2HRS AGO
SHIPPING LANE 7-FULL ASSET NAME: CONVEYOR 2379 ASSET NAME: SHIPPING
PREVIEW TEXT OF 2 LINES MAX. NAM LOBORTIS QUAM IPSUM, ID MOLLIS ORCI ULLAMCORP...
LOW
BADGE
5HRS AGO
NOTIFICATION TITLE (2 LINES MAX)
< ASSET SUMMARY DASHBOARD/ASSET DETAILS
BELT CONVEYOR 2405
FAILURE
TODAY
ASSET IMAGE 1306
3
3D
2D
1
2
OVERALL HEALTH
OEE
50% OEE
TOTAL PERFORMANCE(%)
100%
80%
60%
40%
20%
0%
00:00 04:00 08:00 12:00 16:00 20:00 24:00
TIME (HRS)
AVAILABILITY
QUALITY
PERFORMANCE
FREQUENT FAULTS
ASSETS
FAULTS
ASSET NAME
CONVEYOR
MOTOR
BELT UNIT
COMPONENT B
0 10 20 30 40 50
NO. OF TIMES FAULTED
INACTIVE
ACTIVE
TIMELINE
VIEW 10 EVENTS
ENERGY USAGE

FIG. 13

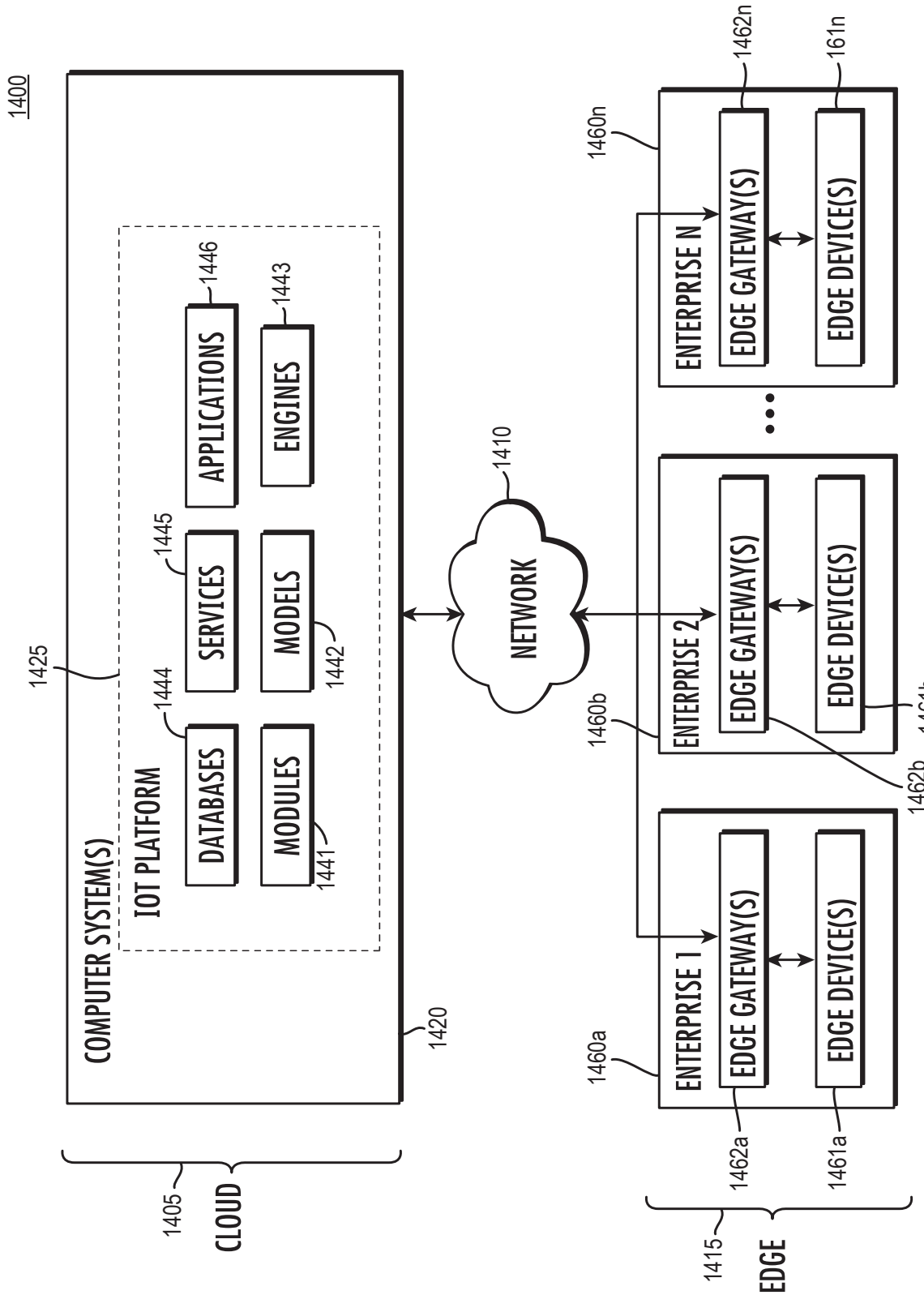

1400
COMPUTER SYSTEM(S)
1425
IOT PLATFORM
DATABASES
1444
MODULES
1441
SERVICES
1445
MODELS
1442
APPLICATIONS
1446
ENGINES
1443
1420
CLOUD
1405
NETWORK
1410
ENTERPRISE 1
1460a
EDGE GATEWAY(S)
1462a
EDGE DEVICE(S)
1461a
ENTERPRISE 2
1460b
EDGE GATEWAY(S)
1462b
EDGE DEVICE(S)
1461b
ENTERPRISE N
1460n
EDGE GATEWAY(S)
1462n
EDGE DEVICE(S)
161n
EDGE
1415

FIG. 14

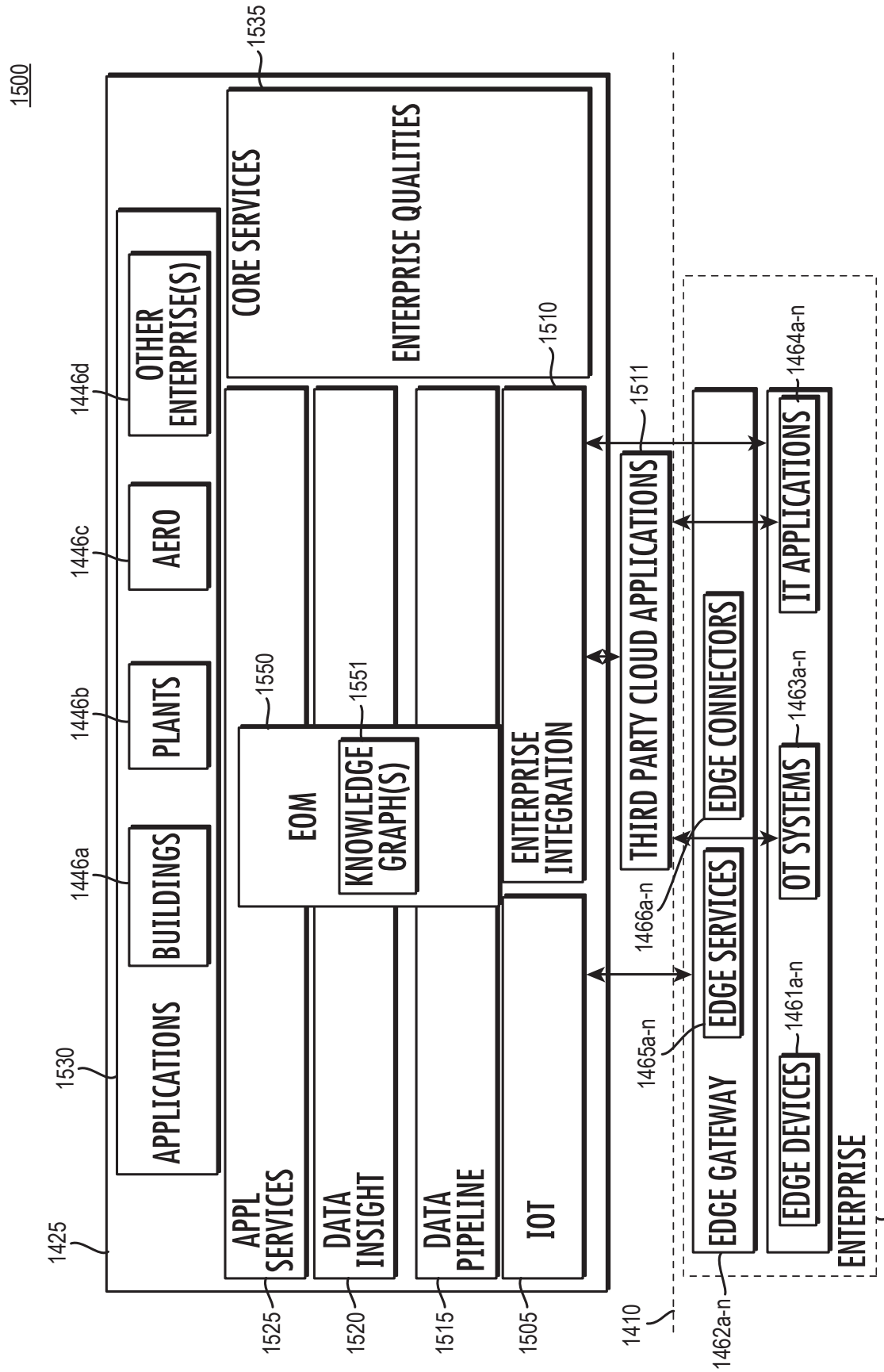

1500
1535
CORE SERVICES
ENTERPRISE QUALITIES
1510
1446d
OTHER ENTERPRISE(S)
1446c
AERO
1446b
PLANTS
1446a
BUILDINGS
1530
APPLICATIONS
1550
1551
EOM
KNOWLEDGE GRAPH(S)
ENTERPRISE INTEGRATION
1511
THIRD PARTY CLOUD APPLICATIONS
1466a-n
EDGE CONNECTORS
1464a-n
IT APPLICATIONS
1463a-n
OT SYSTEMS
1465a-n
EDGE SERVICES
1461a-n
EDGE DEVICES
1462a-n
EDGE GATEWAY
1425
APPL SERVICES
1525
DATA INSIGHT
1520
DATA PIPELINE
1515
IOT
1505
1410
ENTERPRISE
1460a-n

FIG. 15

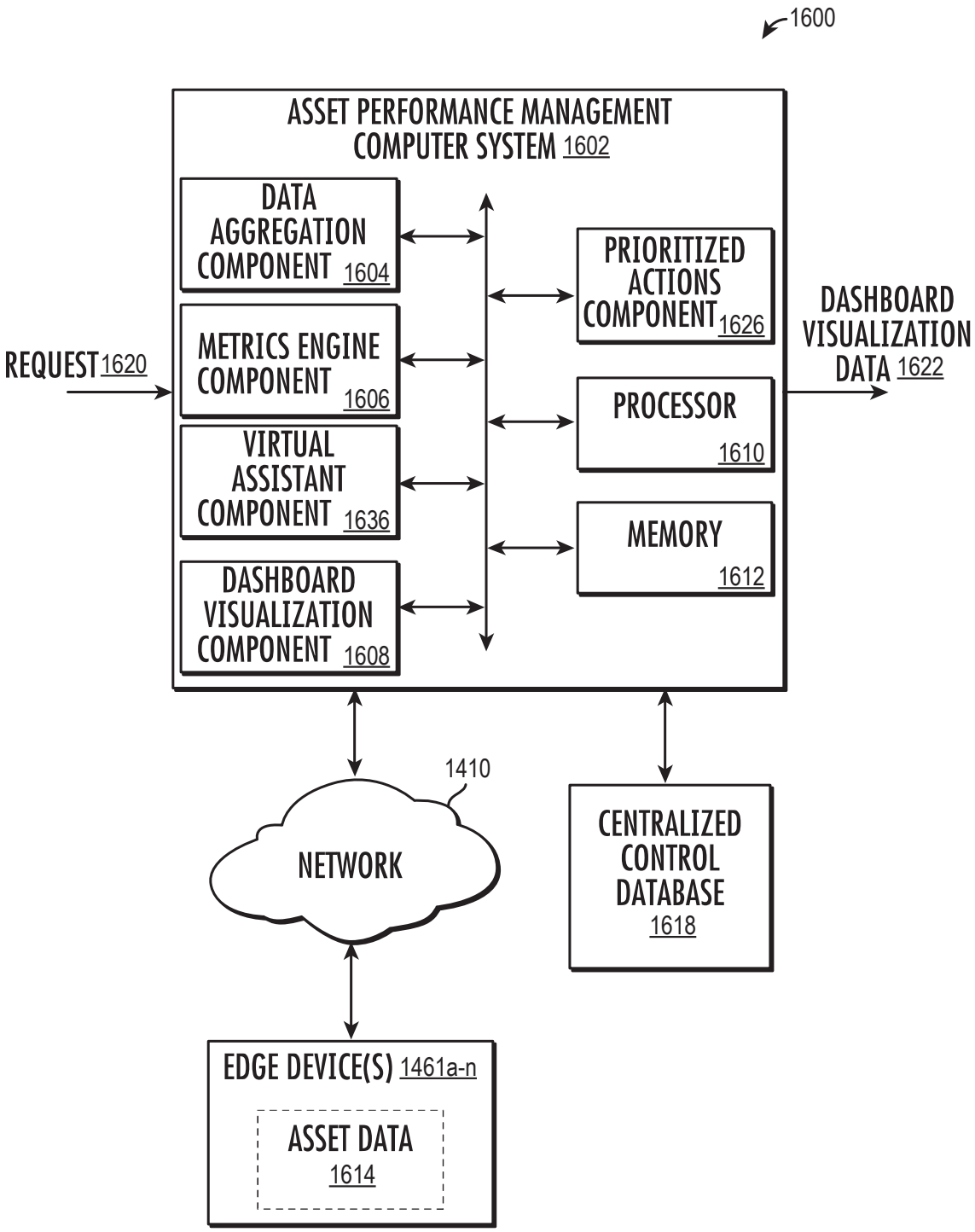

1600
ASSET PERFORMANCE MANAGEMENT COMPUTER SYSTEM 1602
DATA AGGREGATION COMPONENT 1604
METRICS ENGINE COMPONENT 1606
VIRTUAL ASSISTANT COMPONENT 1636
DASHBOARD VISUALIZATION COMPONENT 1608
PRIORITIZED ACTIONS COMPONENT 1626
PROCESSOR 1610
MEMORY 1612
REQUEST 1620
DASHBOARD VISUALIZATION DATA 1622
1410
NETWORK
CENTRALIZED CONTROL DATABASE 1618
EDGE DEVICE(S) 1461a-n
ASSET DATA 1614

FIG. 16