MICROLAND | microbots

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Write-up Document

Microbots

Contents

1. Introduction

60+ readily deployable bots which
Reduce human error
Minimises operational overheads at scale

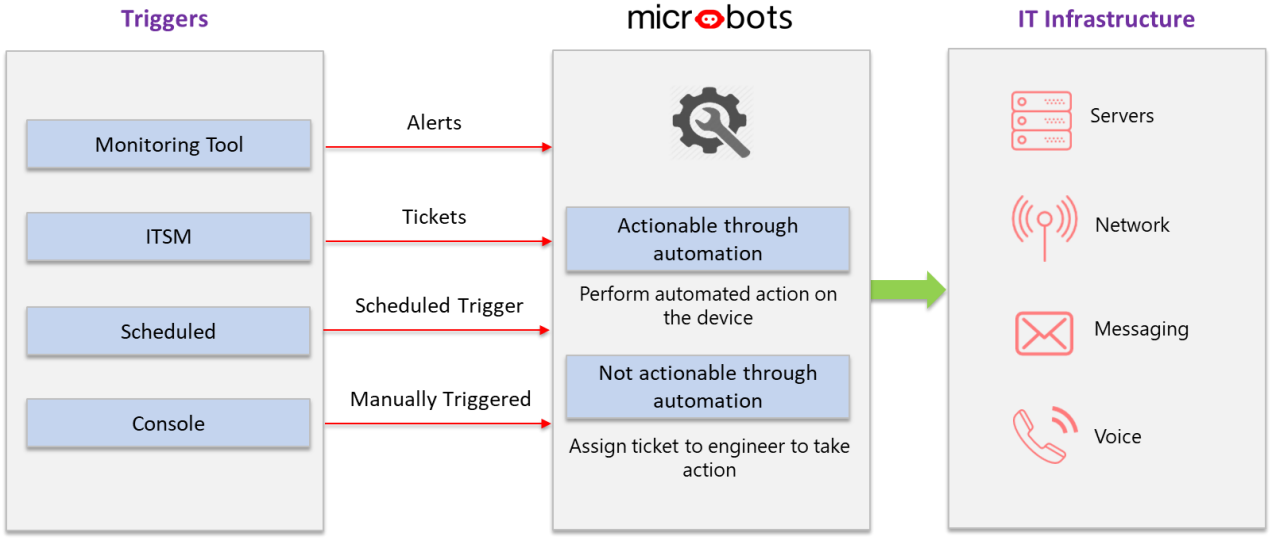
Microbots platform is the newest addition to our MinimalOps themed Service Delivery framework. The Microbots platform is driven by ML-Bots. The ML-Bots assist in auto-remediation of incidents, the fulfilment of service requests and running scheduled and housekeeping tasks (e.g. ITPA). These Bots can be triggered by the observability tooling to auto-resolve issues or can be initiated by engineers from their workbench tools to augment them with complex analysis, visualizations and remedial actions at scale and speed typically not achievable by human alone.

The Microbots help Microland transform the way we manage and operate the customer's ecosystem for the IT Infrastructure Services Delivery. These ML-Bots leverage an Automation powered core to dramatically improve IT operational efficiency by automating operational tasks and eliminating human errors which in turn helps in minimizing operational issues.

2. How Microbots Work?

The Microbots works by replacing the activities done by an operations engineer with automated ones. The platform primarily comprises of workflows which when triggered executes the activity in an automated fashion. The following are the ways through which these automated workflows can be triggered.

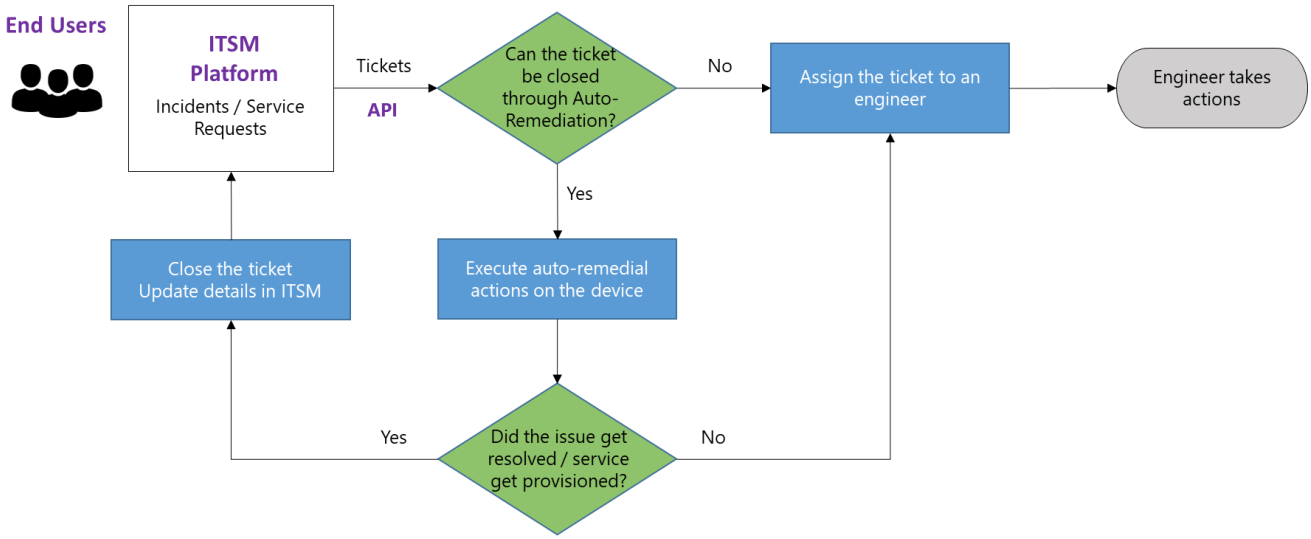
1. Alert - The alerts from the monitoring tools like Traverse, Nagios, SolarWinds etc. can act as a trigger for the execution of these automated workflows.
2. Ticket - Tickets from any ITSM platforms like SmartCenter, ServiceNow, Remedy etc. can be used to trigger the execution of these automated workflows. The incidents and requests from the ITSM can be fed into the Microbots platform to invoke the corresponding automation workflows.
3. Scheduled - The execution can also happen at a pre-specified time interval. These are helpful in automated health checks, start of the day reports etc.
4. Manual - The ML-Bots can also be triggered manually through a console provided to the operations engineer.



Below are the activities performed by the Microbots platform

- Reads and understand the ticket
- Performs a check on whether the ticket can be closed through auto remediation or not. If there is a manual involvement, Automation Engine assigns the ticket to an engineer. Else, auto remediation action is performed on the required device
- Perform automated troubleshooting, corrective actions
- Auto closure of the incident in the ITSM

Below is the detailed flow diagram which explains the same.



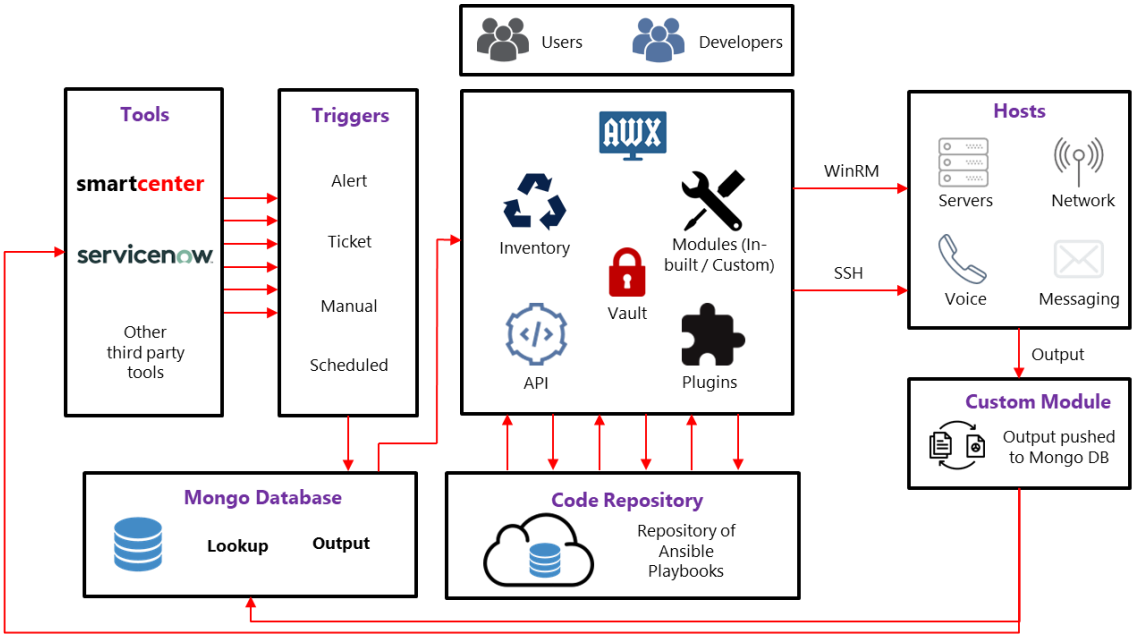
3. Benefits Accrued to The Customer

The following are the benefits accrued to the customer through Microbots in delivering IT operations.

1. Reduced MTTR
2. Improved accuracy

4. Architecture

The below is the architecture diagram of the Microbots platform.



The Microbots platform is built with an Ansible core which manages the device inventory, credentials, API connections to any third-party applications, ansible modules and plugins. Based on the alert / ticket getting raised, Ansible invokes the corresponding playbook (from a code repository). This playbook connects to the corresponding host using protocols like SSH, WinRM etc. to execute remedial actions and update the work notes in the ITSM.

Here is an example – for a specific ticket on "Windows High CPU Utilization", below is the process flow

1. ITSM ticket is cut for "Windows High CPU Utilization"
2. Since Ansible has a playbook to remediate the same, Ansible invokes the corresponding playbook
3. The device details and credentials are fed to the playbook through the inventory and vault
4. The playbook connects to the Windows machine using the WinRM protocol and executes the remedial action
5. The playbook updates the output of the actions as work notes in the ITSM
6. The playbook checks if the CPU utilization for the windows machine has gone below the defined threshold (threshold values are stored in a lookup database)
7. Once the CPU utilization is back to normal, the playbook closes the ITSM ticket and also updates the ticket closure notes

5. Microbots Performance Dashboard

The performance of the Microbots is tracked and is showcased in a 'Microbots Performance Dashboard'. Below is the screenshot for the same.

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Total No. of Executions	Auto closed by ML-Bots	Failed to Perform Auto Closure	No. of Handovers to Engineers
125	71	42	31

No. of Customers Deployed	No. of Bots Deployed	Efforts Saved (Hours)	Efforts Lost (Hours)
1	11	16.00	7.25

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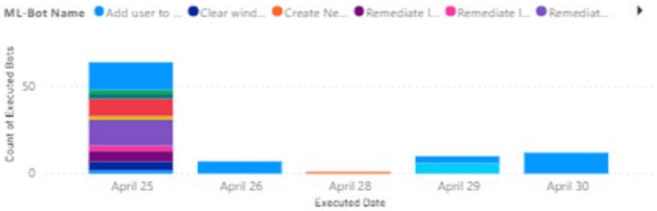
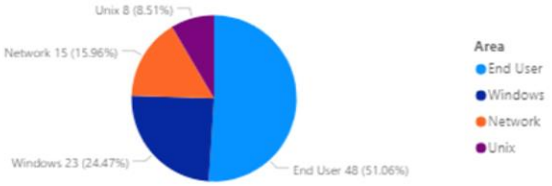
Count of Executed ML-Bots



ML-Bots Executed by Area



Breakdown

ML-Bot	Customer	Successful	Failed	Effort Saved (mins)	Effort Loss (mins)	Value Saved	Value Loss
Unlock AD account		22	11	5.50	2.75	₹ 3,850	₹ 1,925
Remediate network node down		9	6	4.50	3.00	₹ 3,150	₹ 2,100
Clear windows disk space		5	0	2.50	0.00	₹ 1,750	₹ 0
Remediate linux node down		4	2	1.00	0.00	₹ 700	₹ 0
Remediate linux windows down		3	0	1.50	0.00	₹ 1,050	₹ 0
Remediate windows memory util		3	0		0.00		₹ 0
Add user to security group		2	0	0.50	0.00	₹ 350	₹ 0
Remediate windows CPU util		2	8	0.00	0.00	₹ 0	₹ 0
Create New Distribution List		1	0		0.00		₹ 0
Remediate unix memory util		1	1	0.50	0.50	₹ 350	₹ 350
Remediate windows service down		0	2	0.00	1.00	₹ 0	₹ 700
Resize mailbox		0	0	0.00	0.00	₹ 0	₹ 0
Total		**52**	**30**	**16.00**	**7.25**	**₹ 11,200**	**₹ 5,075**