What is the Delegated Network Controller (DNC)?

The DNC is a component of Azure's container networking stack that coordinates between clients, container orchestrators, and other services to create, maintain, and destroy container infrastructure like nodes, subnetworks, networks, containers.

Driving Questions

Is DNC getting better or worse over time?

How can we integrate load testing and performance evaluation into our CI/CD pipelines?

How does higher load impact DNC's performance?

How do new updates impact performance?
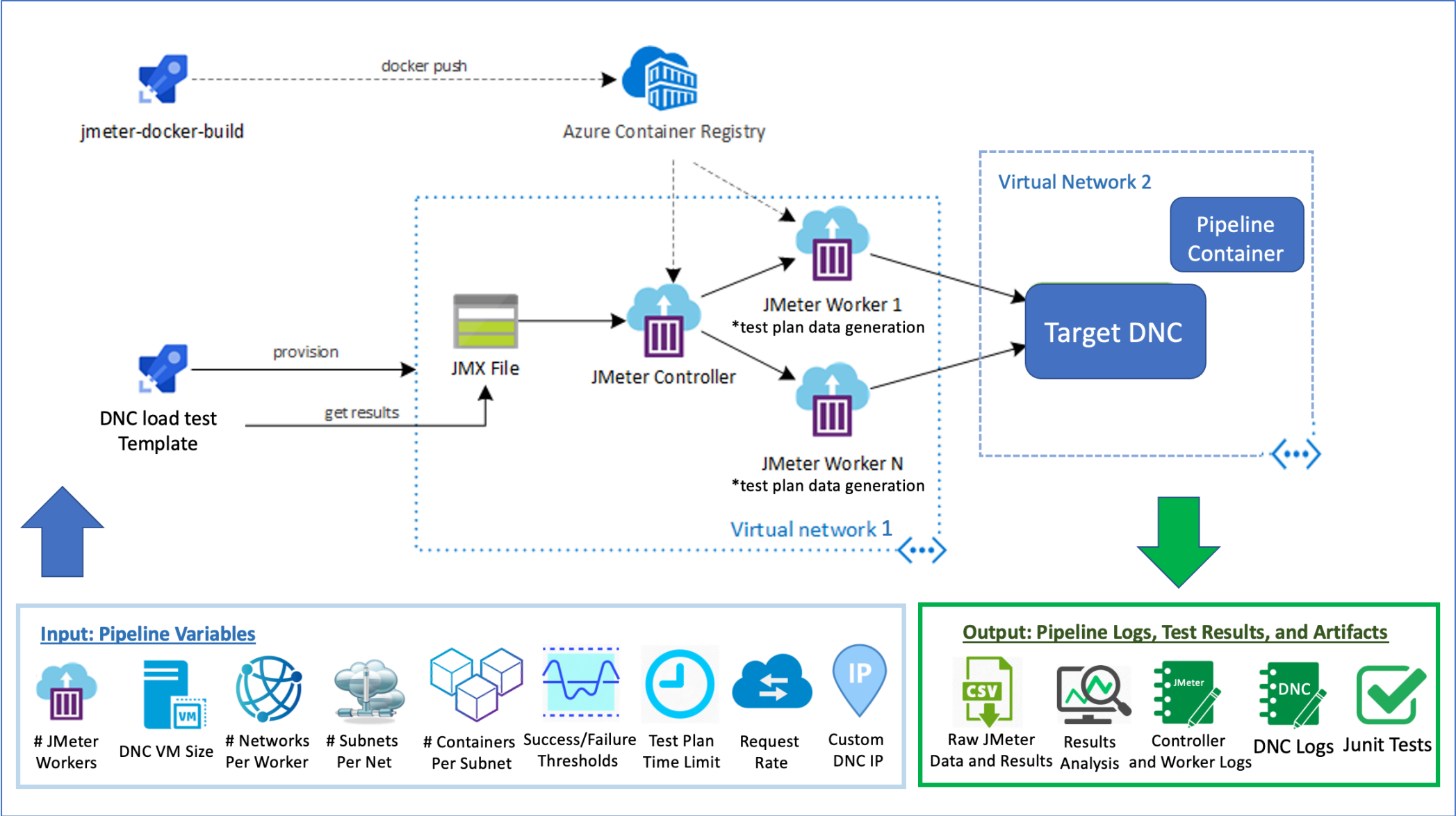
How much load can DNC handle before failing?
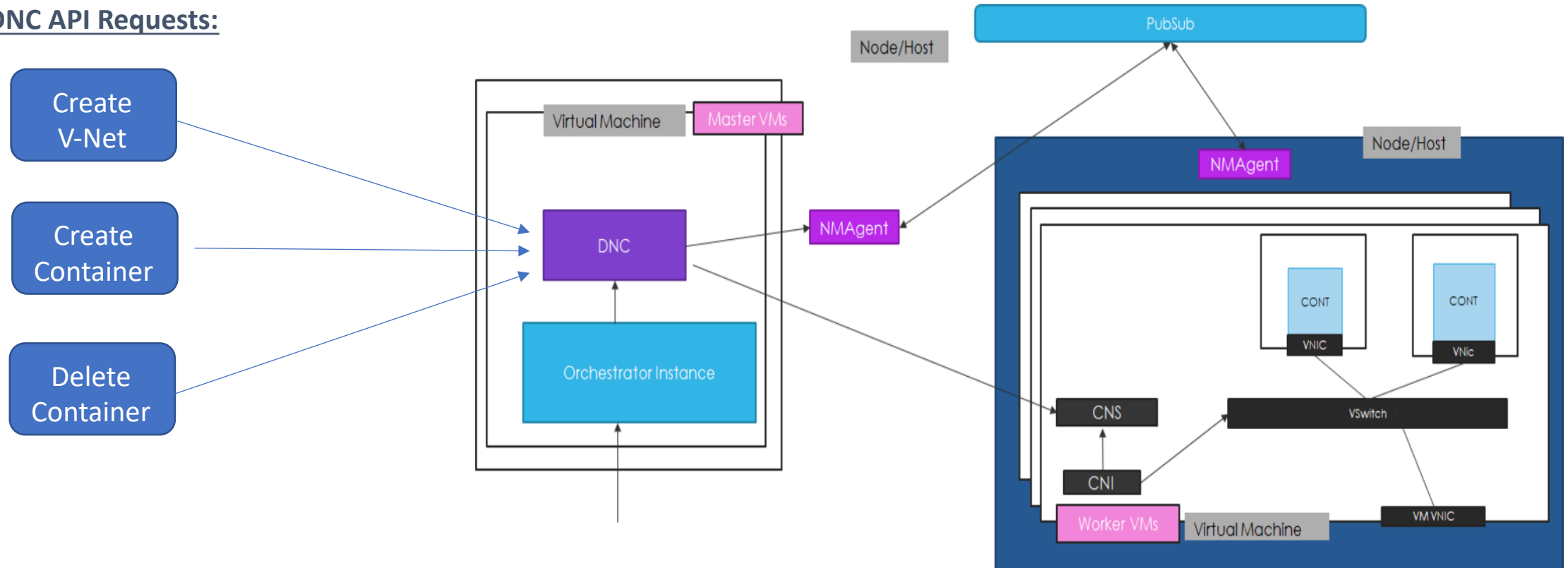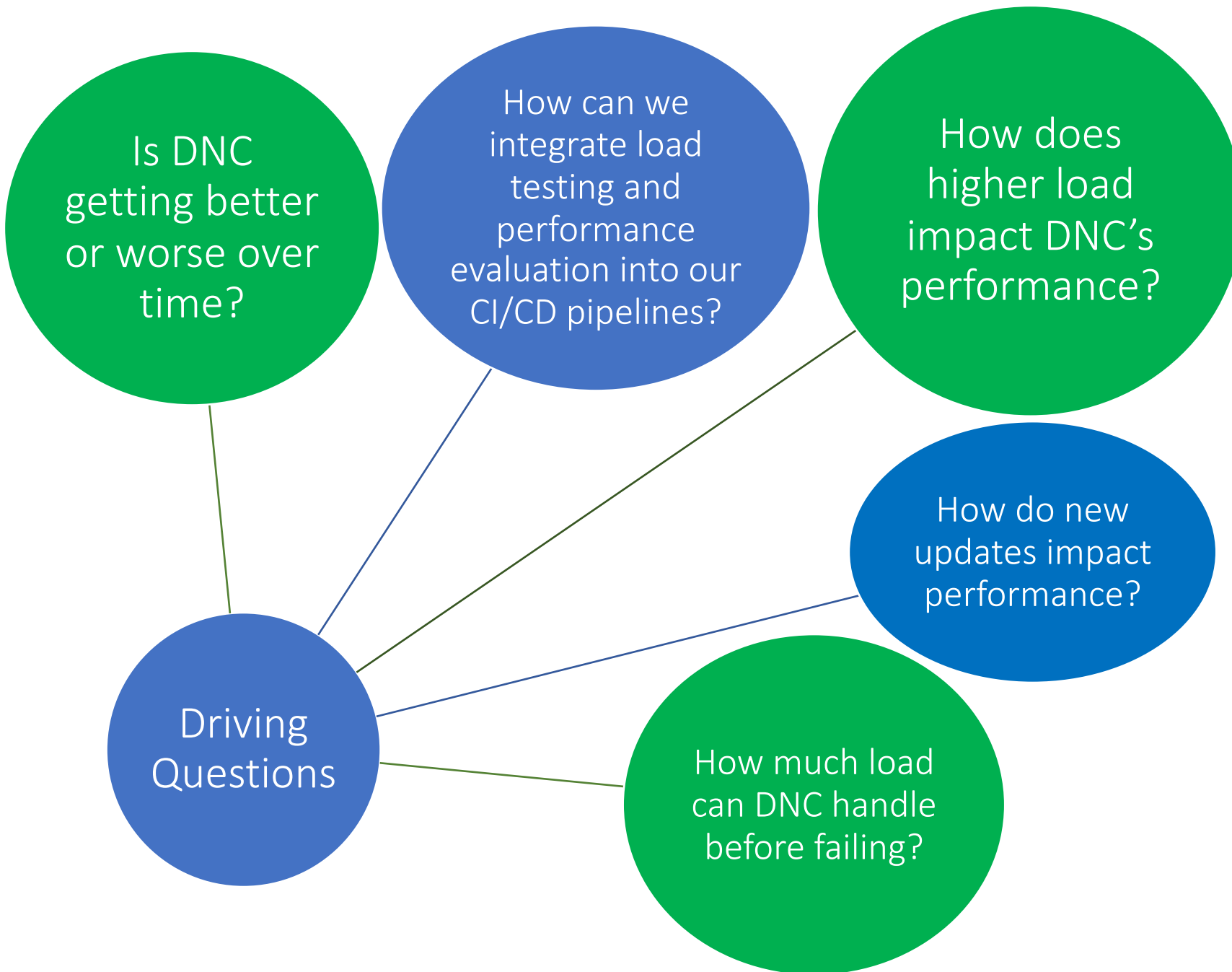
Load Test Pipeline Design Objectives:

1) Identify target DNC or spin up DNC instance given target branch.

2) Provision and deploy the infrastructure for load testing.

3) Consolidate and publish the results; block pull requests with significant performance problems.

4) Integrate with Azure DevOps portal for easy and sophisticated customization of test plans, continuous evaluation, and streamlined analysis of results.
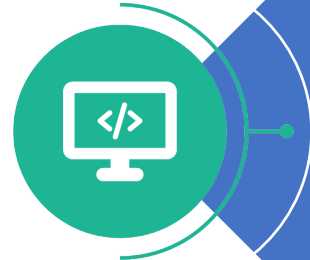
Design Overview

docker push

jmeter-docker-build → Azure Container Registry

provision

DNC load test Template → JMX File

get results

JMX File → JMeter Controller

JMeter Worker 1
*test plan data generation

JMeter Worker N
*test plan data generation

Virtual network 1

Virtual Network 2

Pipeline Container

Target DNC

Input: Pipeline Variables

| # JMeter Workers | DNC VM Size | # Networks Per Worker | # Subnets Per Net | # Containers Per Subnet | Success/Failure Thresholds | Test Plan Time Limit | Request Rate | Custom DNC IP |

Output: Pipeline Logs, Test Results, and Artifacts

| Raw JMeter Data and Results | Results Analysis | Controller and Worker Logs | DNC Logs | Junit Tests |