DxEnterprise vs Pacemaker

DxEnterprise and Pacemaker are both high availability solutions for Microsoft SQL Server on Linux. This document details the differences in features of the two in terms of features and steps for product installation and configuration

Features Comparison

Feature	DxE	Pacemaker
Easy to install and configure	Yes	No
Allows different OS versions and editions in the same cluster	Yes	No
Automatic secure tunnels for data mirroring	Yes	No
Requires SQL 2017 or newer	Yes	Yes
Allows for automatic failover	Yes	No
Requires 3rd party add-ons	.Net Core	Multiple
Requires VPNs for cross-site mirroring	No	Yes
Open source	No	Yes
STONITH devices required	No	Yes
Cross-platform failover	Yes	No
Cross-kernel support	Yes	No

Feature	DxE	Pacemaker
Requires low-level kernel modules	No	Yes
Full production support in the cloud	Yes	No
Management and setup	GUI, PS, CLI	CLI only
Endpoints, certs, etc. creation/propogation	Automatic	Manual
Cloud support, Hyper-V support	Yes	No
Product support	24x7 Enterprise-grade support	Slow, poor, or non-existent

Product Installation and Configuration Steps

Pacemaker Installation Steps on RedHat Enterprise Linux	DxEnterprise Installation Steps on RedHat Enterprise Linux
1. Register each node with RedHat Subscription Manager. 2. Get the available pools for registration. 3. Associate RedHat high availability with the subscription. 4. Enable the repository to be able to use the high availability add-on. 5. Install Pacemaker on each node. 6. Create the password for the user to be used by the cluster on each node. 7. Enable and start the pcsd service on each node. 8. Enable the Pacemaker service on each node of the cluster. 9. Authorize the nodes. 10. Create the cluster. 11. Install a user interface such as Hawk, LCMC or PCS.	1. Install updates. 2. Set hosts resolution for all nodes and Vhosts. 3. Install .Net Core 2.2. 4. Install DxEnterprise on each node. 5. Set a cluster passkey. 6. Set a one-time pass key (OTPK). 7. Join additional nodes to the cluster using the OTPK.

SQL Server Installation and AG Configuration Steps

Installing SQL Server and Configuring an AG with Pacemaker (3 node setup)

1. Install a SQL instance on each node.
2. Enable availability groups feature in SQL.
3. Create the master key, certificate, and endpoint on node1.
4. Backup the certificate on node1.
5. Repeat steps 3-4 on node2 and node3.
6. Copy the backups of the certificate to node2 and node3.
7. Change ownership and the group associated with the copied certificate files to mssql.
8. Create the instance-level logins and users associated with each node.
9. Restore certificates from additional nodes on node1.
10. Grant the logins on node2 and node3 permission to connect to node1.
11. Create instance-level logins and users associated with node1 and node3 onto node2.
12. Restore node1_Cert and node3_Cert onto node2.
13. Grant the logins associated with node1 and node3 permission to connect to endpoint on node2.
14. Create the instance-level logins and users associated with node1 and node2 onto node3.
15. Restore node1_Cert and node2_Cert onto node3.
16. Grant logins associated with node1 and node2 permission to connect to node3.
17. Connect to the primary with SSMS.
18. Run the New Availability Group Wizard.
19. Create Availability Group name.
20. Add a Replica.
21. Connect to the Replica.
22. Repeat steps 20-21 on each node.
23. Configure backup availability of replicas.
24. Create availability group listener.
25. Configure initialization order.
26. Create the SQL Server login and permissions for Pacemaker.
27. Create the availability group resources in the Pacemaker cluster (external only).

Installing SQL Server and Configuring an AG with Pacemaker (3 node setup)

1. Install a SQL instance on each node.
2. Launch DxAdmin and create a virtual host with 3 members.
3. Select “Add availability group” under the virtual host.
4. Assign a name for the AG.
5. Select whether or not to create a tunnel for data mirroring (cross-site).
6. Select the instance to use on each node.
7. Supply a sysadmin username and password to connect to each instance.
8. Set the mirroring port for each instance.
9. Set the availability mode for each instance (synchronous, asynchronous or configuration only).
10. Click “OK”