

6 Sigma Group
Credit Risk Management System
IFRS 9 Module

Bankers serving Bankers

The Digital Back-office

Complexity made Simple



Facility Structuring

- Corporate
- SME
- Retail
- Project Finance
- Object Finance
- Government
- Financial Institutions
- Parametrized

Limits & Caps

- Industry Caps
- Country Caps
- Single Risk Name
- Facility Type
- Collateral Type
- Portfolio Caps
- Facility Limits
- Sub-Limits

Drawdowns

- Multi-Currency
- Condition Precedents
- Maker Checker
- Documentary Links
- Parameterized Fees
- Islamic
- Discounted
- Diarized

Collateral

- Singular
- Multiple
- Shared
- Parametrized
- Diarized
- Multiple Values
- Revaluation

Repayments

- Fees
- Penalties
- Early Settlement
- Restructuring
- Confirmations
- Links to Ledger

IFRS 9

IFRS 9 Capabilities

Standard IFRS 9 requirements

- “Shift in Rating” scale and a “Timeline” for that scale for Stage 2 exposures
- “Rebuttable” capture of Obligor exposures for Stage 2 recognition
- Use of 20-year Transition Matrices to calculate Incremental PDs for Lifetime cases

Additional Features

- Selection of “Backstop” for each run
- A “Shift in Probabilities” which we term the risk rating “Cut-offs” for Stage 2 exposures
- Use of 20-year Transition Matrices to calculate Incremental PDs for Lifetime cases

Fully Parametrized

- Collateral Security Settings: Expected Period of Liquidation, Cost of Recovery, Haircuts and Volatility, per Country
- Facility Settings: LGD, Right of Offset Flag, Credit Conversion Factor for Utilized and Unutilized, per Country
- Full management of PD and LGDs across all scales

Ease of Data Exchange

- Electronic Import of Data for Obligors, Facilities, and Repayment Schedules
- Reports at all levels for different cuts of the portfolio
- Export of Excel File with all details including breakdown of ECL by Currency

IFRS 9

Reports

IFRS 9 Calculation Results Summary

PRR General Settings

PD Calc Repayment Schedule

Stress Testing

Import Log

	AUTHORIZED	OUTSTANDING
Total Facility Expected Loss	225,999,894	37,624,159
Total Facility Expected Loss Stage 1	203,484	92,755
Total Facility Expected Loss Stage 2	16,278,205	4,869,257
Total Facility Expected Loss Stage 3	209,518,206	32,662,147
Total Facility Unexpected Loss	294,542,823	42,897,777
Total Exposure at Risk	807,011,312	792,539,373
Total Exposures	878,374,966	111,967,198
RAROC Total	(269,069,056)	(43,396,237)
RORAC %	(76%)	(13%)
Total Collective Collateral Values	5,846,329	
Number of Obligors	57	
Number of Facilities	104	

Risk Adjusted Return on Capital

	AUTHORIZED	OUTSTANDING
Total Revenue	10,125,998	3,791,006

PRR Calculation

Analysis by Industry- Authorized

INDUSTRY	AUTHORIZED	EXP AT RISK	IRB CA	STD CA	RAROC	RORAC %	OBLIGORS	PRR
Finance - Credit Intermediation & Related Activiti	417,109,969	417,109,969	465,410,800	41,710,997	(44,601,867)	(100%)	11	8.00
Manufacturing - Miscellaneous	56,200,000	11,400,000	9,318,976	1,140,000	(1,229,891)	(141%)	2	7.97
Wholesale Trade - Durable Goods	238,703	238,703	184,499	23,870	(18,883)	(105%)	1	7.94
Retail Trade - Motor Vehicles & Parts Dealers	100,000	50,000	29,768	5,000	(3,325)	(113%)	1	7.79
Manufacturing - Chemical	17,000,000	10,600,000	5,576,675	1,060,000	(514,884)	(94%)	2	7.75
Manufacturing - Food	6,485,000	6,445,000	2,725,414	551,358	(247,338)	(88%)	3	7.61
Transportation - Air	6,607,730	6,607,730	1,905,715	480,415	(139,640)	(65%)	4	7.40
Manufacturing - Primary Metals	36,520,092	36,520,092	6,688,025	3,651,000	(667,393)	(87%)	3	7.11
Construction - Heavy & Civil Engineering	1,000	1,000	179	100	(12)	(54%)	1	7.07
Agriculture - Crop Production	63,318,866	63,268,866	10,256,686	6,326,793	(810,342)	(66%)	8	7.04
Manufacturing - Machinery	3,623,507	3,623,507	591,322	328,257	(38,406)	(49%)	1	7.01
Finance - Securities, Commodity Contracts & Other	66,335	66,335	10,661	4,059	(685)	(48%)	1	7.00
Retail Trade - Food & Beverage	1,300,000	260,000	30,431	26,000	(3,996)	(111%)	1	6.78
Wholesale Trade - Nondurable Goods	150,000,000	150,000,000	13,080,885	15,000,000	(866,063)	(47%)	1	6.54
Manufacturing - Electrical Equipment, Appliances	5,446,623	1,089,325	83,572	93,717	7,270	97%	1	6.44
Manufacturing - Leather & Allied Products	10,220,000	3,820,000	279,669	380,661	(3,192)	4%	1	6.37
Utilities	7,390,818	7,390,818	236,931	667,510	(15,614)	(41%)	4	5.38

[Dashboard](#)
[Obligors](#)
[Exposures](#)
[Projects](#)
[Applications](#)
[Diagnostics](#)
[Valuations](#)
[Peers](#)
[Settings](#)

IFRS 9	PRR Calculation
PRR	Stress Testing
PD Calc	Scenario Planning
	Import Log

Portfolio Capital Adequacy

PORTFOLIO CAPITAL ADEQUACY	AUTHORIZED		OUTSTANDING	
	BEFORE STRESS TESTING	AFTER STRESS TESTING	BEFORE STRESS TESTING	AFTER STRESS TESTING
Capital Adequacy Expected Loss	254,607,880	322,962,621	1,804,319	1,048,558
Capital Adequacy Unexpected Loss	262,380,924	247,588,314	2,496,178	1,185,413
Exposure & Outstanding at Risk Totals	814,429,668	814,429,668	102,293,175	102,293,175
PRR Expected Loss	7.84	8.00	6.01	7.21
Unexpected Loss % EAR & OAR	32%	42%	2%	10%
Standardized Approach Capital Charge	81,043,569	58,945,156	10,100,724	1,090,812

Historical Risk Adjusted Return on Capital

HISTORICAL RAOC	AUTHORIZED		OUTSTANDING	
	BEFORE STRESS TESTING	AFTER STRESS TESTING	BEFORE STRESS TESTING	AFTER STRESS TESTING
Total Revenue	1,693,745	392,990	647,141	57,402
Cost of Funding	(1,319,550)	(121,683)	(410,971)	(78,613)
Total Net Revenue	374,196	271,307	236,170	(21,211)
Gross Margin %	22%	69%	36%	(37%)
Operating Expenses	(187,098)	(135,653)	(118,085)	10,605

Print Export Generate

- IFRS 9
- PD Calculator**
- PRR
- RR Validator
- PD Calc

Risk Rating Range

RR Increment

0.5

Saved Reports

Criteria

[Save](#) [Delete](#)

Backstop Value

Saved Criteria

[Clear All](#)

PRR Data Source Details

EMM Data Imported On: 23 Feb 2023 07:47:00 AM

Month of Dump File: 2

Generated On: 23 Feb 2023 07:51:24 AM

From	To	# Obligors	PD Rate
1.00	1.50	0	0 %
1.51	2.00	0	0 %
2.01	2.50	0	0 %
2.51	3.00	0	0 %
3.01	3.50	0	0 %
3.51	4.00	1	0 %

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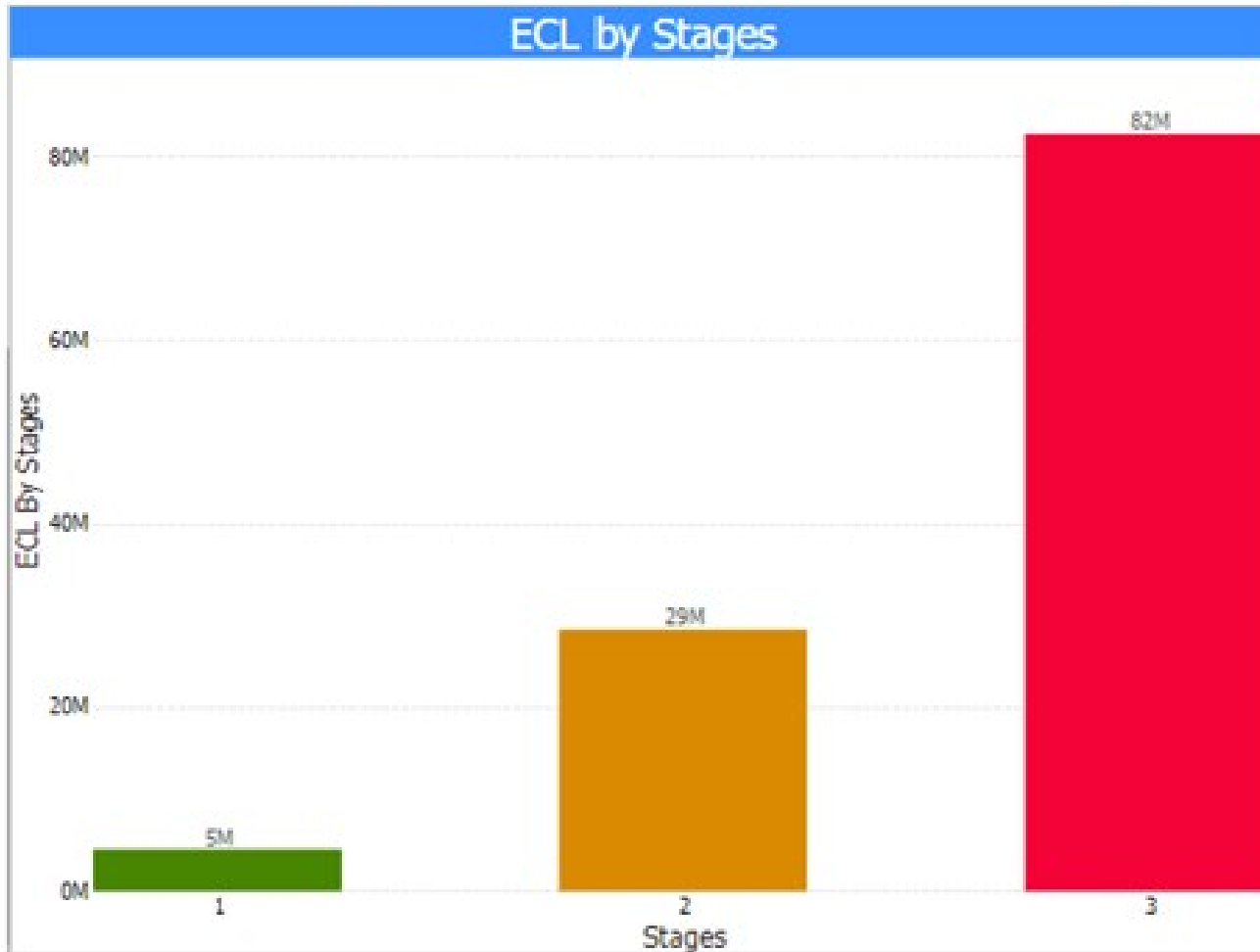
IFRS 9 - ECL

EAR By Stages

ECL By Stages

RAROC

Result Summary



Stages	Obligor	ORR Facility Type	FRR	Authorized Amount	Expected Loss
2	TMK-ARTROM SA SLATINA	7.66 ABF-Inv	7.66	98,473.66	21,580.58
2	TMK-ARTROM SA SLATINA	7.66 FTR	7.66	5,001.00	952.93
1	The Oil & Gas Holding Company, B.S.C.	4.63 IIR FA	4.63	5,000.00	18.00
1	The National Co. for Glass Industries	5.65 HDG	5.65	14,423,076.93	120,615.97
1	The National Co. for Glass Industries	5.65 IIR FA	5.65	4,829,518.01	65,907.03
1	The National Co. for Glass Industries	5.65 ITS	5.65	958,956.66	13,086.60
2	The National Co. for Glass Industries	7.00 ABF-Inv	7.00	3,815,337.66	327,683.82
2	The Ministry Lao	7.19 ABF-AR	7.19	62,692,901.23	11,544,891.45
1	Tabco	5.52 ABF-AR	5.52	244,460.90	203.35
2	Rasamny Younis Motor CO. S.A.L	7.79 LGP	7.79	97,856.93	5,535.28
2	Ramzi Petrom	6.50 ABF-AR	6.50	978.19	12.20
2	Ramzi Petrom	6.50 BDR	6.50	959.79	9.06
2	Ramzi Petrom	6.50 FTR	6.50	10,919.00	17.47
2	Ramzi Petrom	6.50 HDG	6.50	612,536.09	12,405.35
2	Ramzi Petrom	6.50 IIR RE	6.50	88,183.42	3,273.80
3	Ramzi Petrom	8.00 BB	8.00	1,440.00	138.74
2	ramzi abdel razak	7.00 HDG	7.00	95,111,280.20	11,510.56
1	RAM Metal Industries LLC	5.32 OVD	5.32	100.00	0.24
2	Probase	6.15 ABF-AR	6.15	12,060,778.73	960,130.88
1	Peter Co.	5.87 ABF-Inv	5.87	1,000,000.00	10,465.20
2	Obligor1	7.93 ABF-AR	7.93	19,548,431.24	7,256,475.33
2	Obligor1	7.93 ABF-Inv	7.93	475,330.35	176,444.87
2	Obligor1	7.93 BDR	7.93	3,946,719.29	423,234.31
2	Obligor1	7.93 LCR	7.93	10,000.00	772.11
2	Obligor1	7.93 TFX	7.93	586,797.07	21,7821.98
1	National Real Estate Company KPSC	4.86 LT	4.86	9,706,853.04	23,373.47
1	National Real Estate Company KPSC	4.86 STL	4.86	2,925,687.54	14,482.16
1	Mobile Telecommunications Company KSC	4.20 ABF-Inv	4.20	48,295.18	188.75
2	LKL INTERNATIONAL BERHAD	7.98 LC	7.98	54,618,160.54	3,955,323.33
2	Lipidchem	6.16 ABF-AR	6.16	3,000,000.00	28,003.08
3	Government Lao	8.17 ABF-AR	8.17	67,515,432.10	6,987,847.21
1	Etisalat	4.72 BDR	4.72	96,089.17	125.04
1	Prislar	4.77 IIR FA	4.77	5,815.15	24.70
Total				1,317,543,593.57	115,541,398.51

IFRS 9 - RAROC

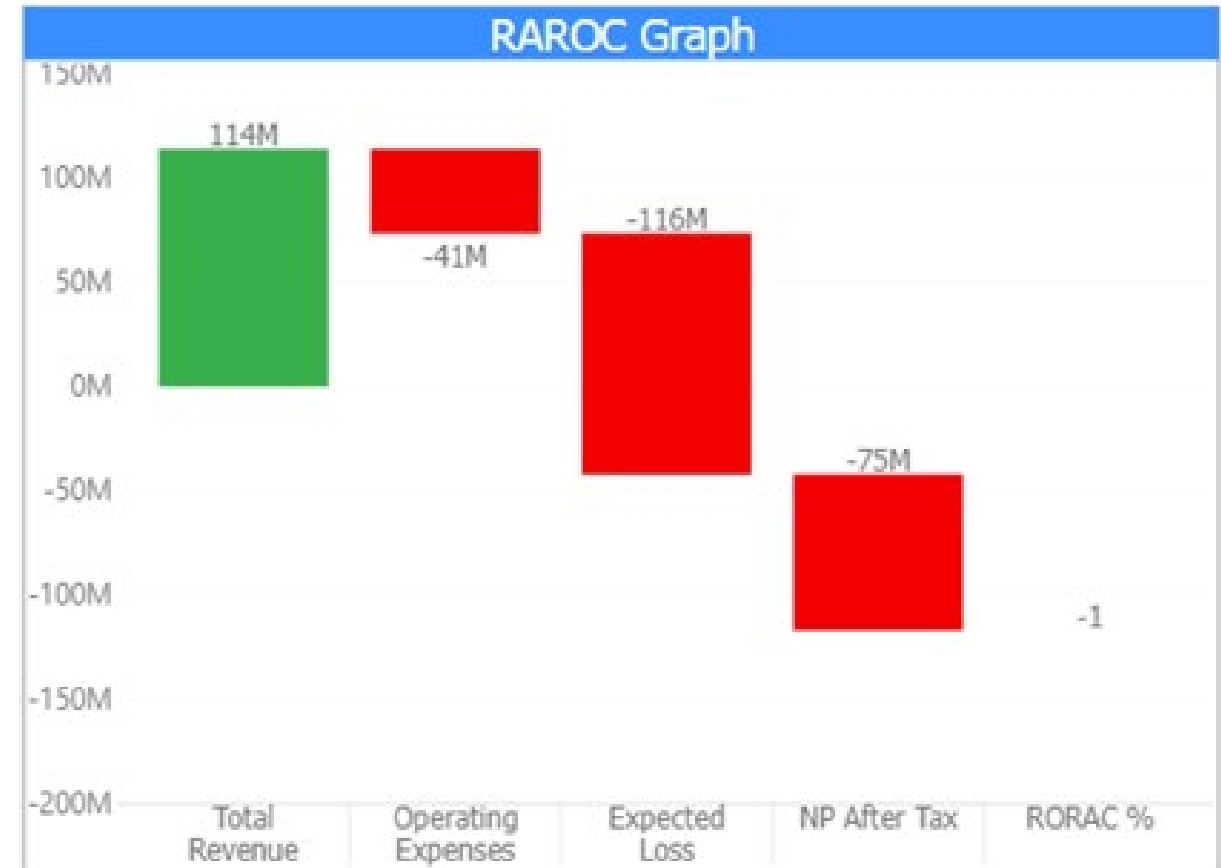
EAR By Stages

ECL By Stages

RAROC

Result Summary

RAROC Table	
Total Revenue	113,873,208.43
Cost of Funds	-32,842,221.86
Total Net Revenue	81,030,986.56
Operating Expenses	-40,515,493.28
Operating Income	40,515,493.28
Expected Loss	-115,541,398.51
NP After EL	-75,025,905.23
Tax	0.00
NP After Tax	-75,025,905.23
Unexpected Loss	-105,280,526.52
RAROC	-90,817,984.20
RORAC%	-71.26%
Standardized ROC%	-65.24%



Risk Management - CAR

Portfolio Capital Adequacy

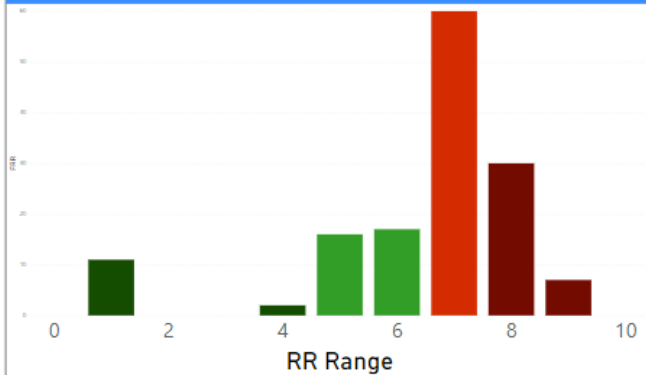
Authorized Concentration Calculation

Excess Utilization Information

Analysis By Industry

Stress Testing

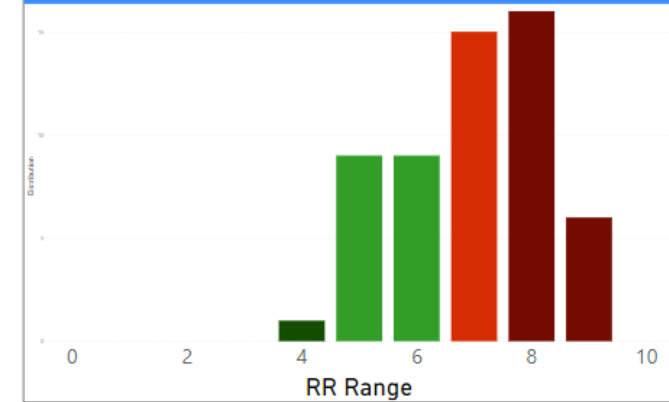
FRR Distribution



Portfolio Capital Adequacy

PRR EL Authorized	7.45
PRR EL O/S	7.45
CA EL Authorized	65,312,651.14
CA EL O/S	38,273,556.13
CA UL Authorized	71,493,907.09
CA UL O/S	41,480,353.63
Total EAR Authorized	452,339,565.63
Total EAR O/S	264,763,887.13
Std. Approach Charge Authorized	44,742,758.16
Std. Approach Charge O/S	26,437,417.89
Single Granulated CA Authorized	190,907.12
Single Granulated CA O/S	160,542.12

ORR Distribution



Implementation

Roll-out

*14 days
Fully Loaded*

Systematic roll-out with full support.

- Fully managed environments on cloud
- Regular releases and upgrades
- Cloud infrastructure and tools; underlying infrastructure (database, operating system, app servers)
- IT Operations and BAU services, including WAF monitoring

Development, Test and Production Environments

- Provision environment for integrations and development
- Provision environment for 6 Sigma testing and sign off
- Environment to support incident management & analysis...

Release, Upgrades

- Frequent Updates
- Frequent hotfixes
- Monthly / Quarterly service packs and patches

Includes:

- Azure Run Costs as an option
- Underlying technology: SQL, Microsoft licenses, WAF
- Cloud tools: Azure Backup, Azure Site Recovery, DB

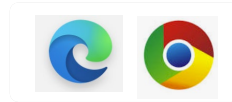
Implementation

- Installation 14 days premise or cloud
- Fully loaded with default settings plus Loss Norm table
- UAT process to include training and Configurations
- Sign off and shift to Production within 5 business days
- Ongoing 6 Sigma Account Management support

Structure

On Premise or Cloud

Cloud



Load Balancers
for users > 500

Applications
Windows IAS

On Premise



Database Layer
Microsoft SQL

Technology Stack		
#	Category	Details
1	Client	Standard Web Browsers (MS Edge and Google Chrome)
2	Hardware	Intel X86-64
3	Application Server OS	Windows 2019
4	Database Server OS	Windows 2019
5	Database	SQL
6	Reporting	ActiveReports
7	Developer Login	Bastion
8	Monitoring	Site 24x7 / Azure Monitoring Tools
9	Backup	Azure Backup / Veeam
10	DR	Azure Site Recovery / Veeam Replica
11	WAF	Sucuri

Western Europe,
Asia Pacific, USA

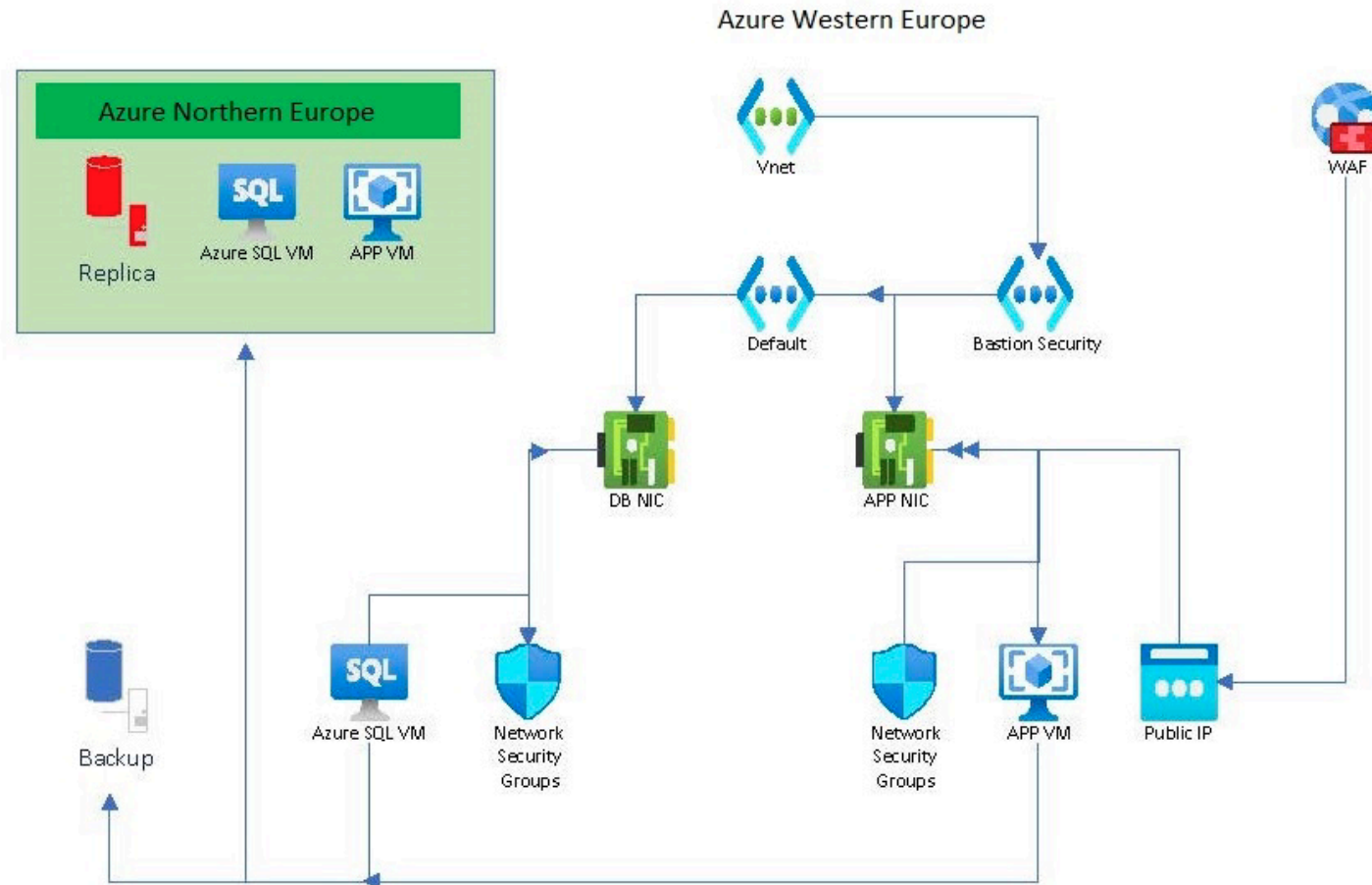
Schematic

Systematic roll-out with full support.



CRMS Network Diagram

Fully Flexible



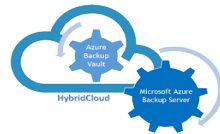
BU and DR

Backup and Disaster Recovery

Backup

Leverage Cloud Native tools:

- Azure Backup Service
- Azure Recovery Vault



Disaster Recovery

Azure Site Recovery for VMs **SQL**
for Database



Leverage Cloud Native tools (ASR)

- 15 minutes Recovery Point Objective (RPO)
- All changes replicated to another region
- PaaS deployed active across two regions

*Best
Practice*

The Rules: Virtual Machine (Web and DB)

- Daily: Full backups are done daily and are retained for a minimum of 30 days.
- Weekly: Weekly backups are retained for a minimum of 5 weeks.
- Monthly: Monthly backups, which include the last and first day of the month, are retained for a minimum of 13 months.
- Yearly: Yearly backups, which include the last and first day of the year, are retained for a minimum of 7 years (GDPR)