
TABLE OF CONTENTS

1.	EXECUTIVE SUMMARY	4
1.1	Key Findings.....	4
1.2	Report Outline	6
2.	WHY TELECOM AUTOMATION MATTERS	7
2.1	Autonomous Isn't Easy	7
2.2	Migration to Intelligence.....	8
2.3	Systems-Level Thinking	9
2.4	Automation & Autonomous Systems	10
2.5	Lessons Learned	12
3.	B/OSS AUTOMATION: THE WEBSCALE CHALLENGE	13
3.1	Automation Opportunities Across the Service Lifecycle	13
3.2	Automation in NFV	14
3.3	Intelligent Process Automation.....	15
3.4	The Role of AI in B/OSS Automation	15
4.	AUTOMATION & SERVICE MANAGEMENT	17
4.1	Service Assurance	18
4.2	Automated Inventory & Topology	18
4.3	Service Orchestration	18
4.4	CSP Plans for Analytics	19
5.	NFV AUTOMATION: BEYOND MANO	21
5.1	The Cloud-Native Imperative	21
5.2	NFV Automation Possibilities.....	22
	Automating Infrastructure Management	22
	Automating VNF Lifecycle Management	22
	Automating Service Orchestration	23
5.3	ECOMP: One Step Ahead.....	23
6.	AUTOMATION IN THE CARRIER WAN	25
6.1	Drivers & Benefits of WAN Automation	25
6.2	Automation & SDN	26
6.3	Multilayer Interworking	27
6.4	SD-WAN: A Case Study in WAN Automation Success	29

7.	AUTOMATION IN MOBILE NETWORKS	31
7.1	Service-Centric Automation	31
7.2	5G Is a Services-Led Technology.....	31
7.3	Today's State of the Art	33
7.4	Coming Next: DevOps, Machine Learning, AI	34
8.	SECURITY IN AN AUTONOMOUS AGE.....	35
8.1	Services & Security	35
	Low-Latency Services & Service Chaining	35
	Multi-Tenant Services	36
	Customer Programmable Services – CEM Initiatives.....	36
	Service Agility & Programmability.....	36
8.2	Software & Security.....	37
	Distributed & Decomposed Software	37
	Open Source Software	37
8.3	Charting the Way Forward	38
	TERMS OF USE.....	40

Use of this PDF file is governed by the terms and conditions stated in the license agreement included in this file. Any violation of the terms of this agreement, including unauthorized distribution of this file to third parties, is considered a breach of copyright. Heavy Reading will pursue such breaches to the full extent of the law. Such acts are punishable in court by fines of up to \$100,000 for each infringement.

For questions about subscriptions and account access, please contact support@heavyreading.com.

For questions and comments about report content, please contact Heavy Reading at reports@heavyreading.com.