

BBD Applications Overview

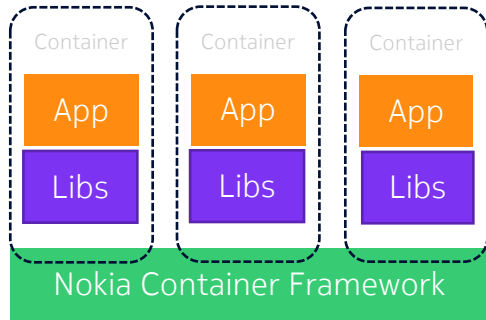
2Q 2023

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Application Container Ecosystem

What are container applications?



- “A container is a standard unit of software that packages up code and all its dependencies, so the application runs quickly and reliably from one computing environment to another.”*
- Nokia Container Framework run isolated applications and its dependencies virtualizing the access to Home OS, Linux Kernel and Hardware and controlling the resource consumption.

*Docker.com



The next level of Application Enablement

1

Embedded Framework

Leveraging the embedded software stack and open-source baseline to **interface between local and remote controllers**

2

Developer Toolkit

A suite of tools and documentation for 3rd party software developers to **build, test, and release** applications for Nokia's broadband devices

3

Applications

Each application is a product with a unique value proposition for the operator and/or the end-user. These can be developed by Nokia, 3rd party, or operator themselves.

4

Application Marketplace

An interface for operators to **“try-and-buy” different applications** on target devices

Go-to-market strategy

Off-the-shelf versus customer solutions



Nokia
Marketplace

Full end-to-end services between Beacons and Corteca, including device and WiFi management. Supports 3rd party devices via USP



CSP led
integration

Custom solution based on operator needs. May include 3rd party ACS and APIs

Managing applications from Corteca Cloud

Home & Marketplace dashboards

Application Marketplace

Summary



- Easy access to new applications through our Nokia WiFi Cloud Controller.
- Full software life cycle management, no ACS needed. All the tools integrated in one place.
- License management through our Nokia tools and processes for **payment applications**.
- **Free applications**, Nokia-made and Opensource.

* Some points are still in development or roadmap

Installing applications for a single Home Network

New Application section in Home Dashboard

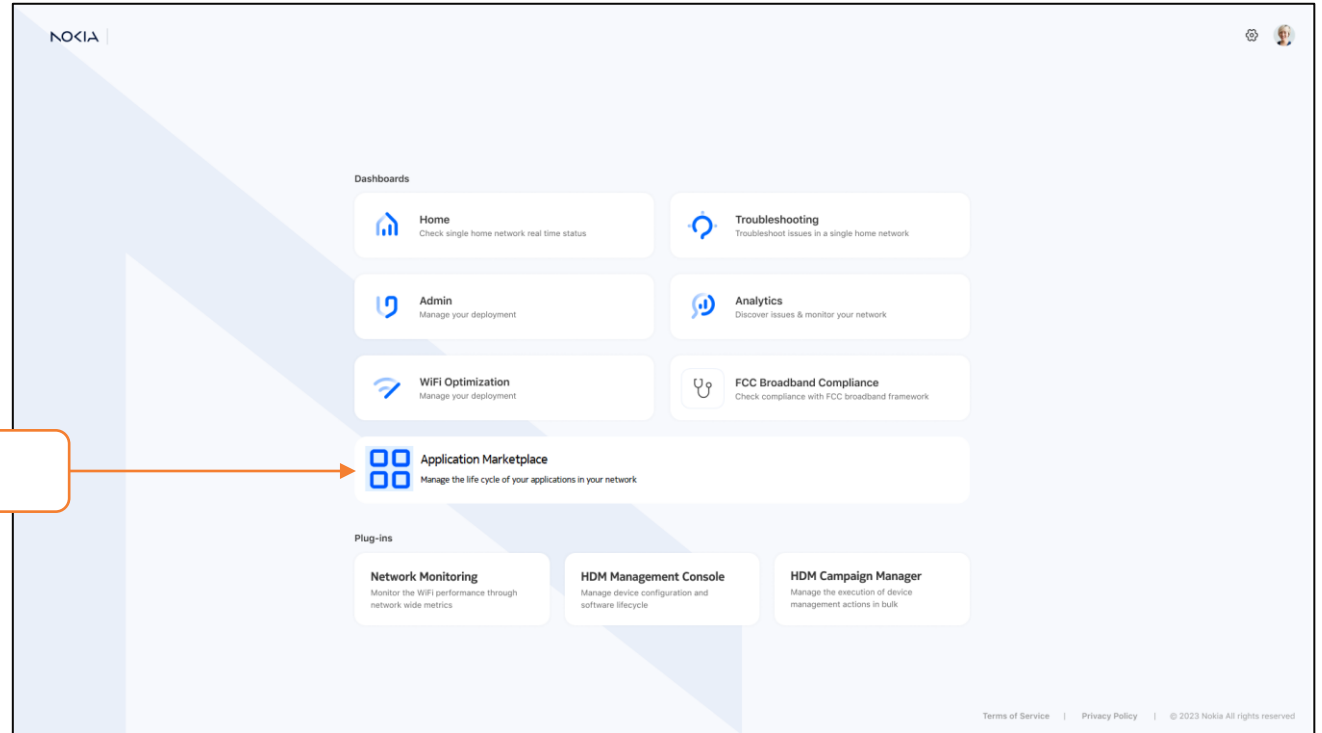
All application approved by product owner/network admin appear in the applications page of the home dashboard

Easy visibility and quick deployment for a single home network

The screenshot displays the Nokia Home Dashboard's 'Applications' section. On the left is a navigation menu with 'Applications' selected. The main area is divided into 'Available applications' and 'Installed applications'. The 'Available applications' section lists: F-Secure Sense (Cybersecurity & Parental Controls), Nokia Huella (Device Fingerprinting), Cognitive Systems (Wi-Fi motion sensing), Domos (Traffic identification), MLAB (MLab Speed Test), Broadpeak Nano CDN (Multicast IPTV), and NETJAMA (Duma OS Gaming). The 'Installed applications' section shows a table with columns for Name, Version, Running, Autostart, and Remove. It lists F-Secure Sense (version 3.02.301) and Domos (version 5.2.1). Below this, a detailed view of F-Secure Sense is shown, including a description: 'Requires a compatible router / home gateway with F-Secure SENSE connected home security inside. F-Secure SENSE connected home security on your home router/gateway protects all internet-connected devices in your connected home, from desktop computers and phones to smart TVs, game consoles and baby monitors against cyberattacks. The easy-to-use SENSE app lets you manage the security of your connected home ...' and an 'Install' button.

Application Marketplace

New Dashboard in Corteca Console



New Dashboard in
Corteca Console

Application Marketplace

Intent-based network management

New sections in roadmap

Configure deployment policies

The screenshot displays the Nokia Application Marketplace interface for configuring a deployment. The left sidebar shows a navigation menu with 'Overview', 'Free applications', 'Payment applications', and 'Deployment'. The main content area is titled 'Deployment / Nokia Huella/ Beacon 6 + bundle' and includes the following sections:

- Deployment specs:** Intention name 'Beacon 6 + TV bundle', Intention status 'Enabled' (toggle switch).
- Target devices:** Hardware model 'Beacon 6', Firmware version 'Any'. A 'Belonging' section contains a dashed box with a circular refresh icon and the text 'Drop a CSV file here or click to upload'.
- Application details:** Name 'Nokia Huella', Version '30.221', DU status 'Installed', EU status 'Active'.
- Active from:** Year '2022', Month 'December', Day 'Saturday', Time '23:30'.

A 'Save' button is located at the bottom right. Three callout boxes are overlaid on the image: 'New sections in roadmap' points to the 'Free applications' and 'Payment applications' items in the sidebar; 'Configure deployment policies' points to the 'Deployment' item in the sidebar; 'Includes full lifecycle management' points to the 'Belonging' upload area.

Application Marketplace

Applications ready to be deployed

The screenshot shows the Nokia Application Marketplace interface. On the left is a navigation sidebar with four items: Overview, Free applications, Payment applications, and Deployment. A dashed purple box highlights the 'Free applications' and 'Payment applications' items, with an orange arrow pointing from a text box to this area. The main content area is titled 'Deployment' and is divided into two sections: 'Free applications' and 'Payment applications'. Under 'Free applications', there are two cards: 'Nokia Inspector' and 'Nokia Huella'. Under 'Payment applications', there is one card: 'F-Secure Sense'. Each card includes an icon, the application name, a short description, and a 'See details >' link. A green 'Cybersecurity' badge is present on each card. An orange text box at the bottom right contains the text 'Available applications: Free and Payment', with two orange arrows pointing to the 'Nokia Huella' and 'F-Secure Sense' cards respectively.

New sections in roadmap

Available applications: Free and Payment



Applications



F-Secure Sense

Cybersecurity & Parental Controls

F-Secure Sense provides a complete cybersecurity solution aimed at internet security and privacy, connected home security, and content aware parental controls. The solution provides an opportunity for CSPs to take a trusted provider position and drive increased value for their broadband service.

License Separate commercial license

Developer F-Secure

Product Reference [Connected Home Security for service providers](#)
[F-Secure](#)

Customer Reference [Kinetic by Windstream](#)

Integration Strategy Marketplace
CSP Hosted for Windstream only

Device Support Beacon 6 (BBDR2302)
Beacon G6 (BBDR2303)

Status Preview in Marketplace (BBDR2303)
Production as CSP Hosted for Windstream

SMART HOME SECURITY
Protect all connected home devices against online threats and hacking



SMART DEVICE BREACH MONITORING
Secures your customers' passwords and offers 24/7 monitoring with alerts if their ID has been stolen when using smart home device and other cloud services



PRIVACY PROTECTION
Stops trackers and ensure your customers' privacy online



FAMILY RULES
Lets parents set healthy boundaries for their children at home and on the go



PROTECTION ON THE GO
Protects phones, tablets, PCs and Macs everywhere and anywhere, even on public Wi-Fi



MALWARE PROTECTION
Keeps devices safe from viruses, trojans, spyware and ransomware with award-winning internet security



HYPER SPEED
Leading technology to minimize security impact on your broadband speeds



DEVICE RECOGNITION
Lets users see and manage all devices connected to their home networks with user friendly

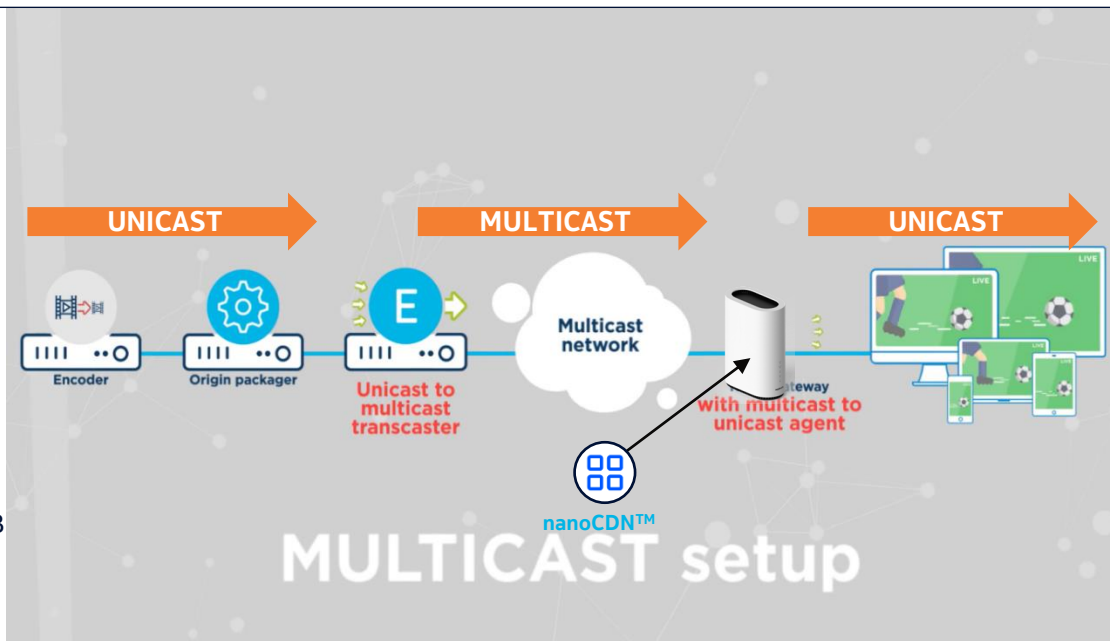


Broadpeak nanoCDN

Multicast IPTV

Broadpeak mABR delivers highly scalable video content to customers anytime, anywhere, on any device. Targeted at CSPs who want to differentiate themselves within the OTT space. Benefits include better video experience, lower core network cost, and congestion management.

License	Separate commercial license
Developer	Broadpeak
Product Reference	nanoCDN mABR multicast IPTV Broadpeak
Customer Reference	Non-public customers
Integration Strategy	CSP Hosted
Device Support	<ul style="list-style-type: none">• XS-2426G-B (BBDR2302)• G-1425G-A, G-1425G-B, G-2425G-B (BBDR2303)
Status	Production





Nokia Fingerprint

Diagnostics

Delivers a high-speed device recognition engine to improve the accuracy of connected device identification. Enables CSPs to provide better customer service and improves WiFi optimization to assist in traffic prioritization, identify unauthorized devices, and troubleshoot WiFi issues.

License Included in Corteca L1 License

Developer Nokia

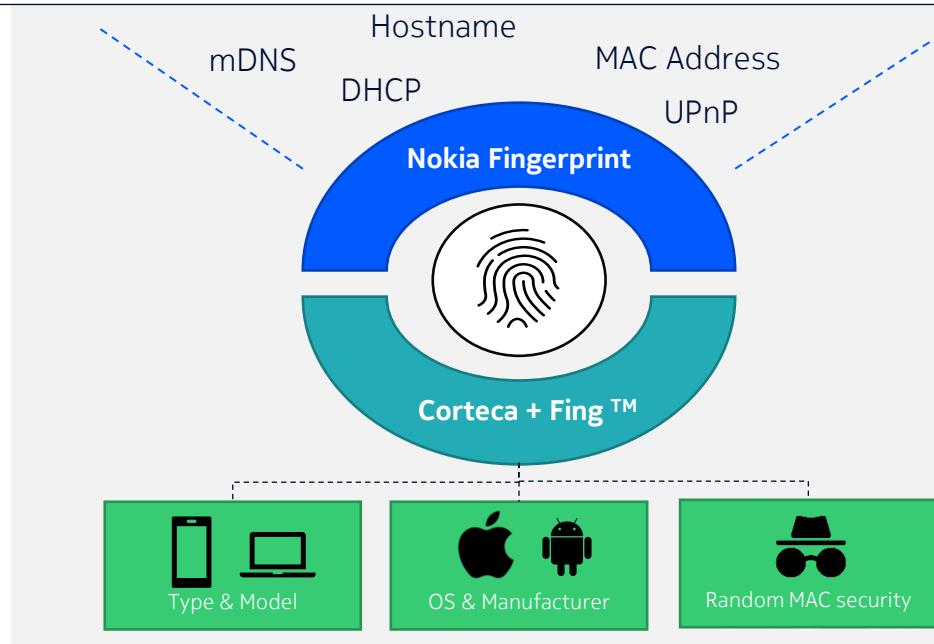
Product Reference Not available yet

Customer Reference Not available yet

Integration Strategy Nokia Marketplace

Device Support Beacon 6 and Beacon 10 (both in BBDR2303)

Status Preview (2303)





ND7 Client

Speed test

M-Lab's Speed Test provides advanced diagnostics of the performance of your broadband connection through quick measurements. Enables broadband subscribers and support agents to diagnose WAN connectivity problems and reaffirms broadband speed tiers.

License	Open Source (FOSS)
Developer	Measurement Labs
Product Reference	TBD
Customer Reference	CS&S Sponsorship Measurement Labs
Integration Strategy	Nokia Marketplace
Device Support	Beacon 6 and Beacon 10 (target to BBDR2304) Beacon G6 (TBD)
Status	Preview (2304)

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Test Your Speed

M-Lab's Speed Test provides advanced diagnostics of the performance of your broadband connection through quick measurements.

I agree to the data policy, which includes retention and publication of IP addresses.

AGAIN C

For more on M-Lab's data collection and measurement, including the disclosure of IP addresses, see our [Privacy Policy](#).

Results

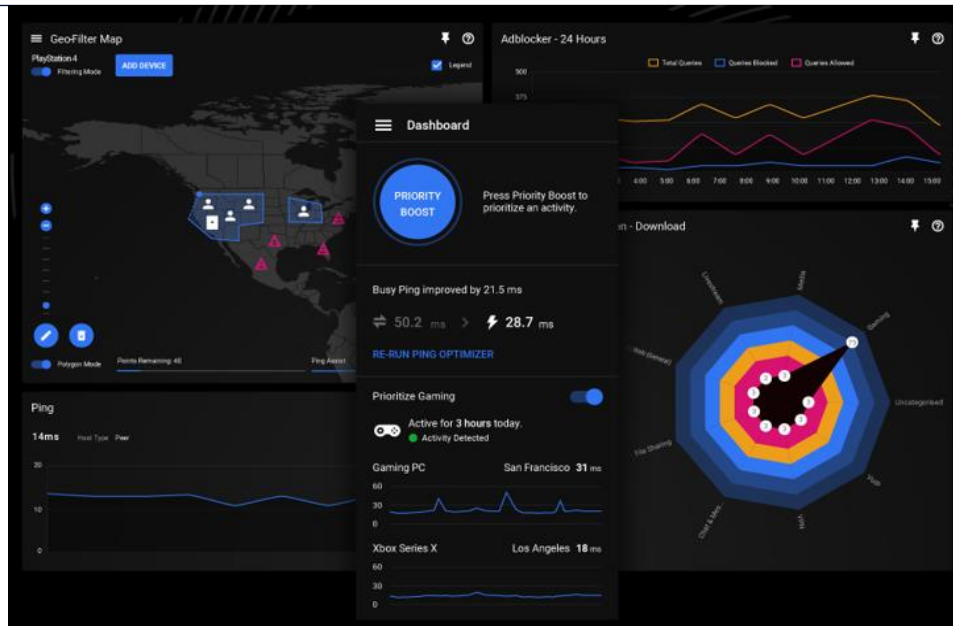
☰	Test Server	Los Angeles, US
↓	Download	214.85 Mb/s
↑	Upload	132.94 Mb/s
⌚	Latency	6 ms
📶	Retransmission	0.00%

Netduma OS

Gaming

NetDuma provides monitoring and network optimization to improve your gaming experience and provide users with more control of the home gaming profile. CSPs can offer a gaming service or include premium gaming optimization in multi-gigabit broadband service packages.

License	Separate commercial license
Developer	NetDuma
Product Reference	NetDuma gaming
Customer Reference	Non-public customers
Integration Strategy	Marketplace CSP Hosted for Windstream
Device Support	Beacon 6 and Beacon 10 (target to BBDR2303) Beacon G6 (TBD)
Status	Preview in Marketplace (BBDR2304) Production as CSP Hosted for Windstream (TBD)



Nokia + F-Secure

CyberSecurity

Smile! Hackers Can Remotely Access Your Samsung SmartCam Security Cameras

January 15, 2017



Security

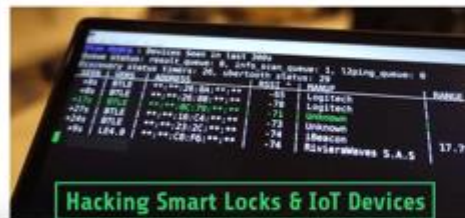
World's largest CCTV maker leaves at least 9 million cameras open to public viewing

Xiongmai's cloud portal opens sneaky backdoor into servers

By Shaun Nichols in San Francisco 9 Oct 2018 at 23:51 45 SHARE

How to Hack Smart Bluetooth Locks and IoT Devices – Check this Out

September 13, 2016



PEN TEST PARTNERS

Smart Locks: Dumb Security

San Martin 13 Aug 2016

Homeowner's Blood 'Ran Cold' as Smart Cameras, Thermostat Hacked, He Says

"Right as I approached the baby's room, I heard a deep voice talking to him!"
By Courtney Copenhagen and Katie Kim
Published Jan 30, 2018 at 7:13 PM | Updated at 10:58 PM EDT on Jan 30, 2018

Security

Not so private eye: Got an Axis network cam? You'll need to patch it, unless you like hackers

According to magic people, VDOO people
By Shaun Nichols in San Francisco 18 Jun 2018 at 23:05 14 SHARE

Ransomware Hijacks Hotel Smart Keys to Lock Guests Out of their Rooms

January 26, 2017



Ransomware Locks Down Hotel Rooms



Security

Knock, knock. Who's there? Another Amazon Key door-lock hack

Little box of tricks can let crooks sneak in after a delivery

By Simon Sharwood 5 Feb 2018 at 02:59 55 SHARE

BrickerBot Author Retires Claiming to Have Bricked over 10 Million IoT Devices

By C
Netgear exploit found in 31 models lets hackers turn your router into a botnet

Security

Forget Mirai – Brickerbot malware will kill your crap IoT devices



Rogue code aims to create permanent DoS

San Francisco 8 Apr 2017 at 09:32 47 SHARE

Hackers once stole a casino's high-roller database through a thermometer in the lobby fish tank

New York City 10 Jul 2016 09:00 AM



IoT and Biometry: From Identity Theft to Heart Attack

07 September 2018 12:15, UTC | 5788



30 New Mirai Worm Knocks 900K Germans Offline

WNY 15

More than 900,000 customers of German ISP Deutsche Telekom (DT) were knocked offline this week after their Internet routers got infected by a new variant of a computer worm known as Mirai. The malware wriggled inside the routers via a newly discovered vulnerability in a feature that allows ISPs to remotely upgrade the firmware on the devices. But the new Mirai malware turns that feature off once it infects a device, complicating DT's cleanup and restoration efforts.



AWARD-WINNING CONNECTED HOME SECURITY



“Best in Class Marketing Award Winner”

Award at BMMA

Mar 2020



“Best Consumer IoT Deployment”

Award at IoT World

Aug 2020



“Best Operator Service for Consumers”

Award at Broadband World Forum

Oct 2020

A man with a beard and mustache, wearing a grey sweater, is looking down at a smartphone in his hands. The background is dark and out of focus.

CYBER **CRIME**
on the rise

34%

Have experienced some form of cyber crime during the past 12 months, in 2021 (up from 29% in 2020)

A hand is holding a tablet computer. The screen displays a passcode entry interface with the text "Enter Passcode" and a grid of numbers. The background is dark and out of focus.

SMART HOME
SECURITY & PRIVACY
CONCERNS
INCREASING

51%

Growing number of consumers avoid buying connected devices due to security & privacy concerns, in 2021 (up from 48% 2018)

A hand is holding a smartphone. The background is dark and out of focus.

LACK OF **TRUST**

80%

Feel device manufacturers are not doing enough to ensure their online security and privacy



64%

**TRUST THEIR
SERVICE PROVIDER
TO PROVIDE SECURITY,
UP FROM 60% IN 2020**

€6-11 /MONTH

**OPTIMAL PRICE
FOR CONNECTED
HOME SECURITY**

SENSE offering

F-SECURE SENSE FEATURE PACKAGING



F-Secure SENSE features when integrating into 3rd party apps

CORE PROTECTION

BROWSING PROTECTION

TRACKING PROTECTION

BOTNET PROTECTION

DEVICE RECOGNITION



FULL PROTECTION

FAMILY RULES

ADVANCED SMART HOME SECURITY
– PACKET FLOW INSPECTION

ADVANCED SMART HOME SECURITY
– ML-BASED ANOMALY DETECTION

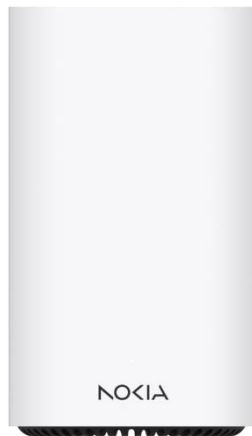
OPTIONS

SENSE App (Android, iOS)

Operator App Integration

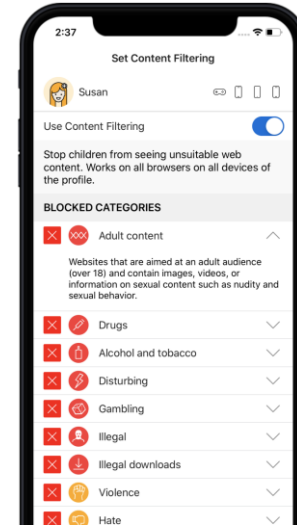
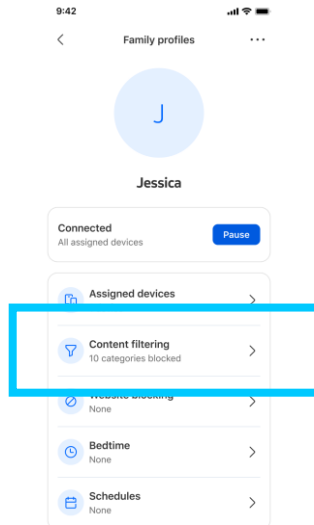
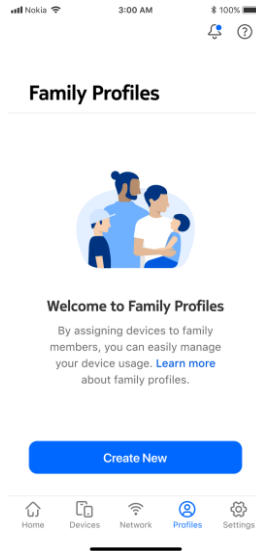
Single-Sign-On Integration

ACS-based Activation Flow



Nokia WiFi app + F-Secure

Integration adds content aware filtering and browsing/smart home protection and event notifications



NOKIA