ENI PoC #13: Intelligent Coverage Optimization of 5G Massive MIMO BS

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Short Description

This PoC will provide viable solutions and methodologies for the Coverage Optimization of 5G Massive MIMO BS(Base Station) through the use of a set of AI(Artificial Intelligence)/ML(Machine Learning) algorithms based on a set of data including MR data, BS information(e.g. Engineering parameters, antenna information, etc.), geographic information (e.g. electronic map),etc. Beam management policies will be based on general and specific AI models to help BSs achieve a better coverage efficiency and minimize interference at the same time.

The proposed PoC intends to deploy, test and validate the AI-based methodology framework as those proposed by the above mentioned ENI WIs. More specifically, this PoC plans to improve radio coverage and capacity by using a transferable set of policies.

✓ **PoC Project Goal: Data Analysis and Policy-Based Coverage Optimization. Demonstrate the use of AI based data analysis to enable policy-based coverage optimization for Massive MIMO BS.**

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PoC Goals and PoC member task

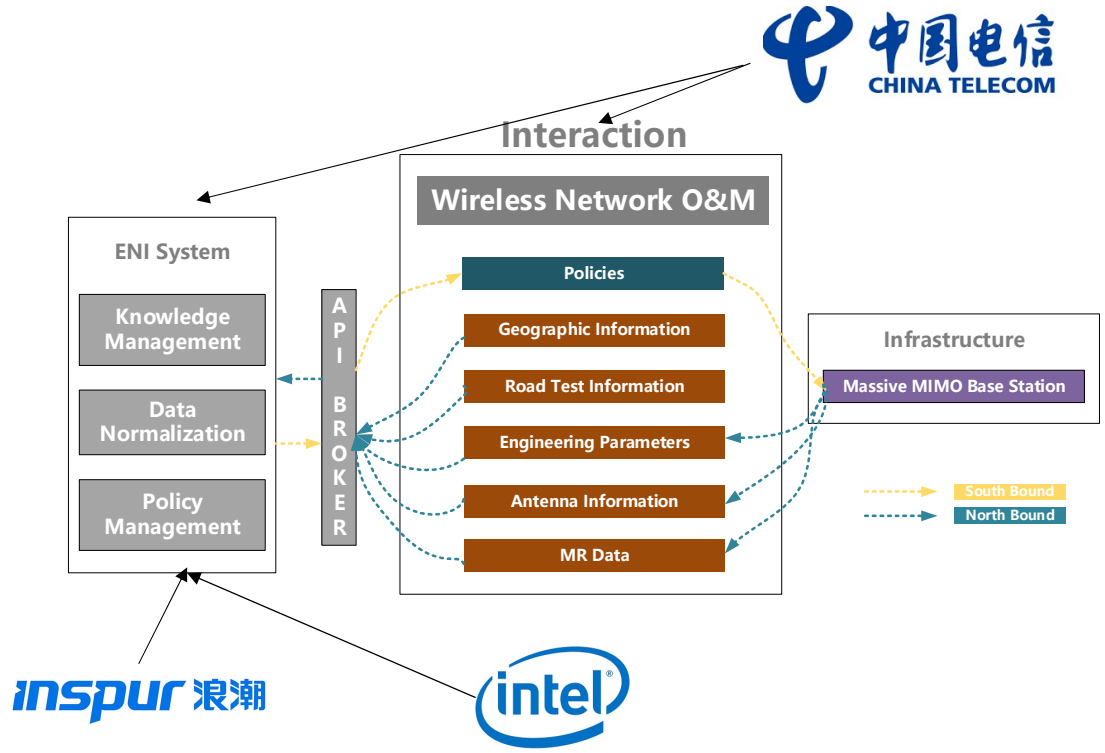
Host/Team Leader:

中国电信 CHINA TELECOM

Team members:

intel

inspur 浪潮



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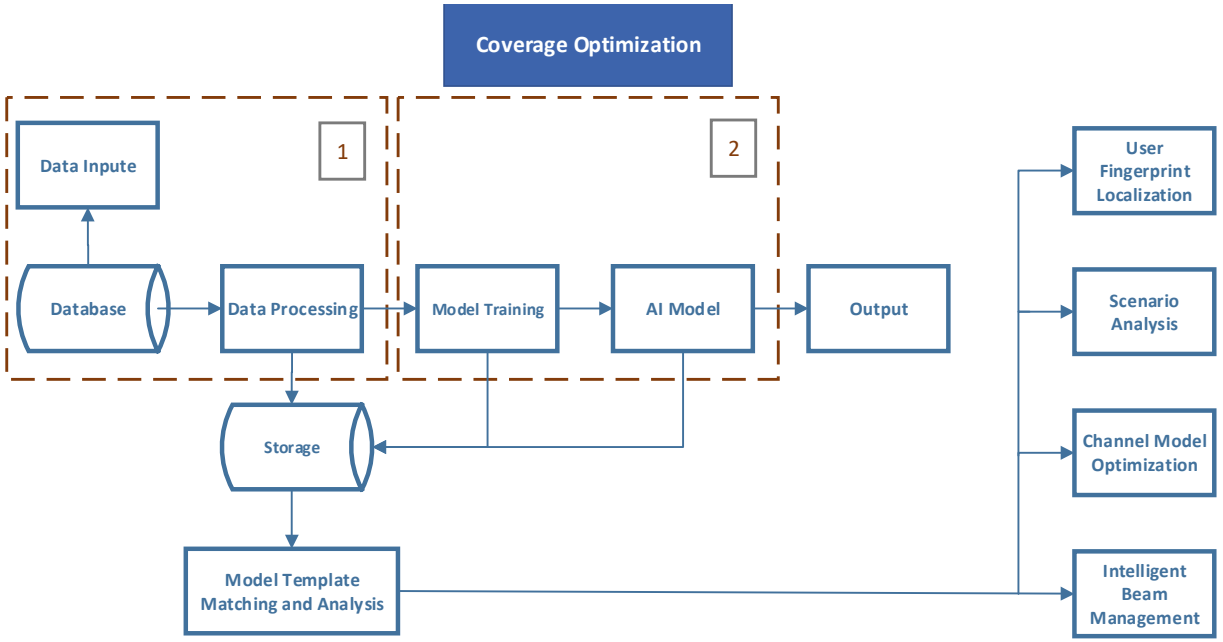
PoC member task



- ✓ **China Telecom:**
  1. **Use case development and data collection for further test.**
  2. **PoC development and algorism design.**
- ✓ **Intel:**
  1. **Testbed setup and demo**
  2. **Relative standard establishment work.**
  3. **Implementation and optimization of AI algorithm?**
- ✓ **Inspur: UI improvement**
- ✓ **Algorithm Development**

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PoC Demo

1. **The login page**
2. **The current SSB beam information**
3. **The AAU information**

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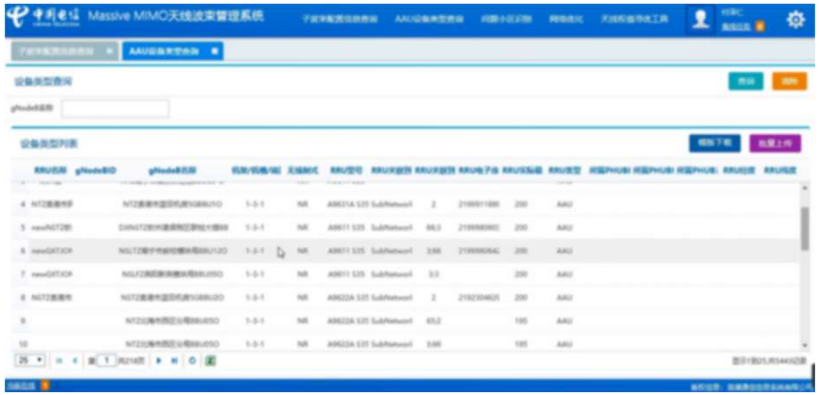
PoC Demo

1. Poor coverage, and overlapping coverage base station exhibition
2. Coverage status quo of several base station in urban area based on collected MR data.
3. Coverage problem list of certain area



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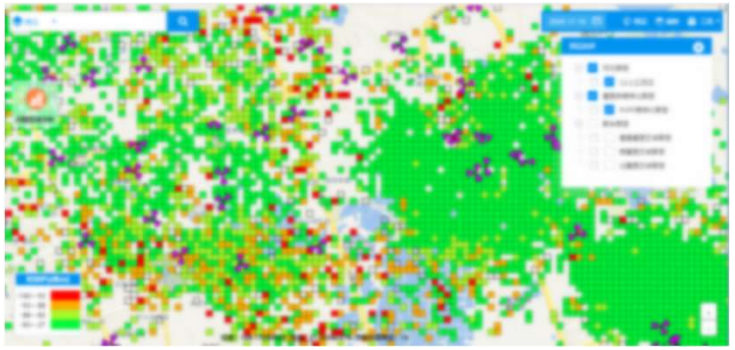

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PoC Demo

1. GIS exhibition of certain area
2. GIS exhibition of coverage status of certain area before and after coverage optimization.
3. GIS exhibition of coverage status of certain base station before and after coverage optimization, in this case is electrition tilt angle optimization.

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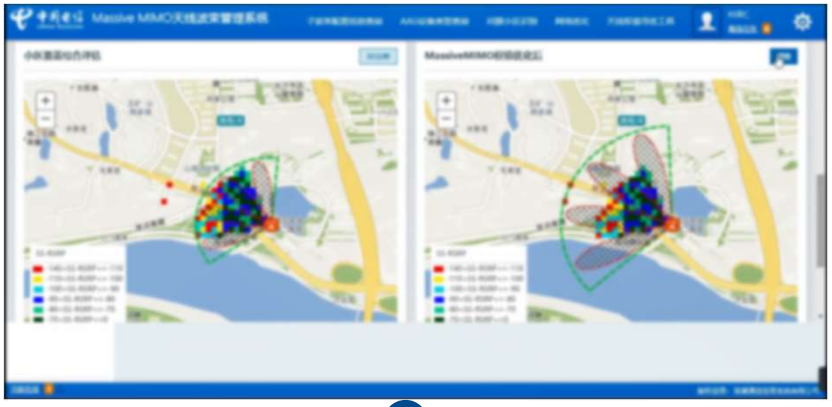

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Working Arrangement

PoC Milestone	Stages/Milestone description	Target Date	Additional Info
P.S	PoC project submission	10/2020	Presentation during #ENI Rapporteur Call#160
P.S	PoC user story	12/2020	
P.TP.1	PoC Test Plan 1	03/2021	Test plan based on the user story
P.TP.2	PoC Test Plan 2	06/2021	Test of joint system and optimization
P.D1	PoC Demo 1	12/2021	ETSI ENI#20
P.D2	PoC Demo 2	3/2022	ETSI ENI#21
P.R	PoC Report	09/2021	PoC-Project-End Feedback
P.E	PoC Project End	12/2021	Presented to ISG ENI for information

Current

Target

Thanks!