PoC #16: AI based family broadband network user experience optimization

PoC host contact/Rapporteur:

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PoC milestones

PoC Milestone	Stages/Milestone description	Target Date	Additional Info	Current status
P.S	PoC Project Start	09/2022		
P.D1	PoC Demo 1	12/2022	Demo at an ENI plenary meeting	
P.C1	PoC Expected Contribution 1	12/2022	Contribution to ENI Requirements	
P.C2	PoC Expected Contribution 2	03/2023	Contribution to ENI Use Cases	★
P.R	PoC Report	06/2023	PoC-Project-End Feedback	
P.E	PoC Project End	07/2023	Presented to ISG ENI for information	
Milestones need to be entered in chronological order. NOTE:				

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Review

- At the past of ENI-#23 - Meeting, approved of this PoC starting, and determined the theme, team, technical scheme and work plan.

- At the past of ENI-#24 - Meeting, introduced architecture and implementation process of PoC, and completed the demo phase of POC milestone.

- At the past of ENI-RappCall # 242， contributed the proposal to ENI 001，and optimized PoC architecture.

Contribution: supplement to ENI Use case 3-8

In the meeting of ENI-RappCall # 242, Asiainfo and Intel contributed proposal of ENI (23) 000_047r1, to be used to supplement ENI 001 case 3-8. The contribution added mapping relationship between PoC architecture and ENI architecture, and flow of information.
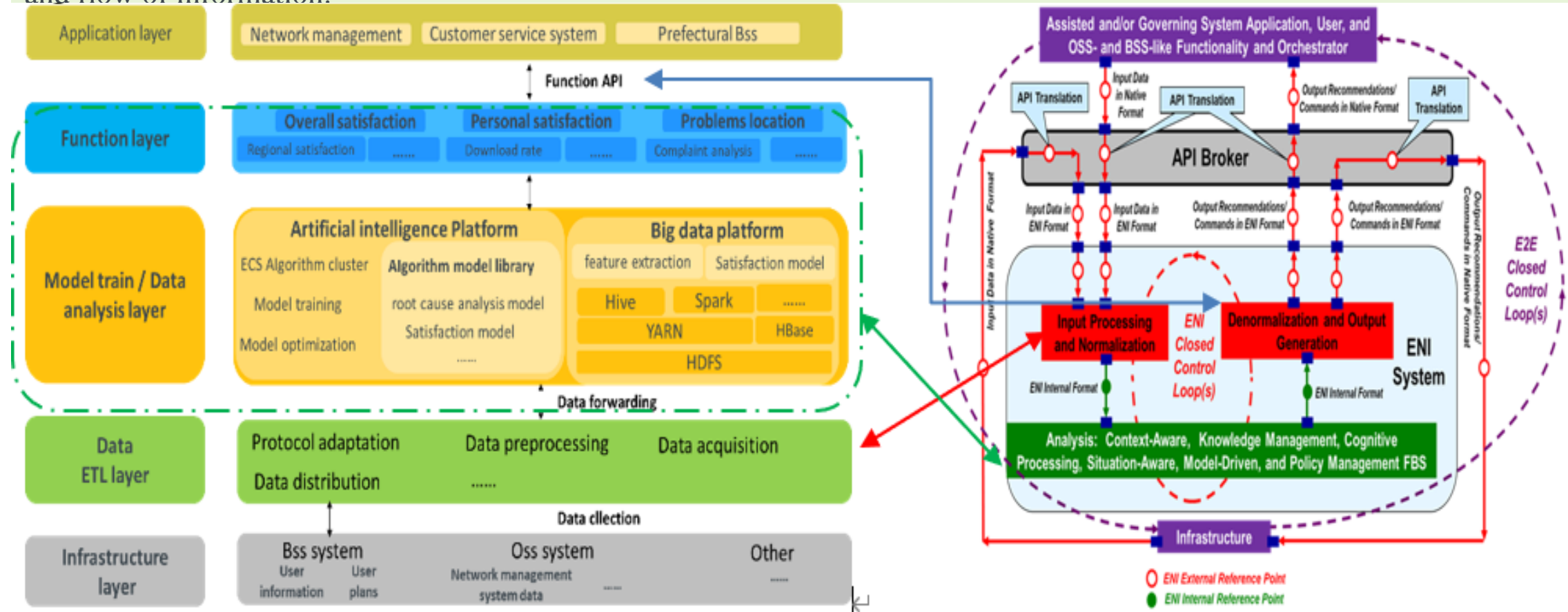

Figure : Mapping to ENI reference architecture

Step 1: Infrastructure layer sends massive historical data to data ETL layer.

Step 2: The data ETL layer normalizes the data and sends the data to the model train and data analysis layer.

Step3: The model train and data analysis layer process normalization data and a generates user experience model.

Step4: Infrastructure layer sends periodic data to data ETL layer.

Step5: The data ETL layer normalizes the data and sends the data to the model train and data analysis layer.

Step6: after learning, model train and data analysis layer have generates atomic capabilities for customer experience optimization and encapsulates these atomic capabilities in the functional layer.

Step6a: when the model train and data analysis layer call the existing knowledge can not understands the normalizes periodic data, it will analyzes and learns periodic data to optimize the customer experience optimization model.

Step7: Functional layer 's atomic capabilities are ready to be used the via functional layer API.

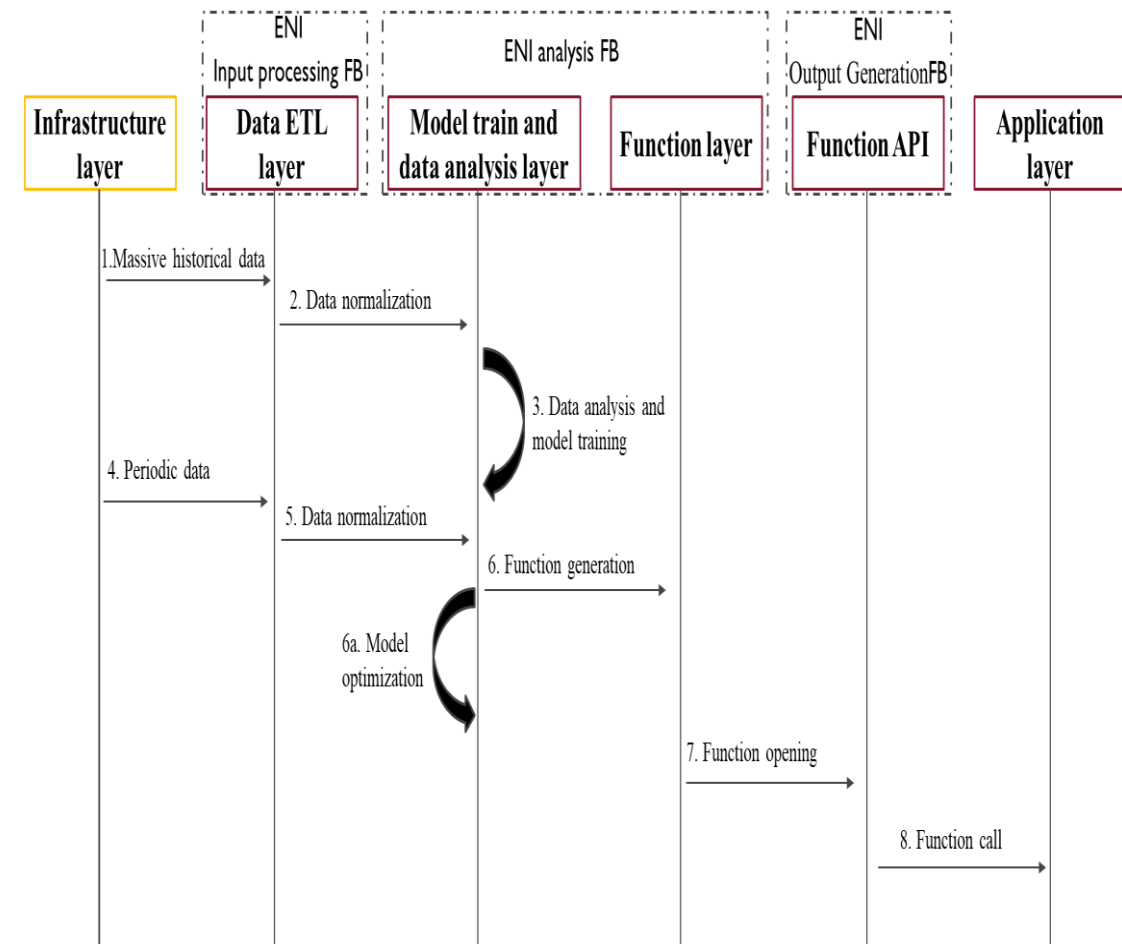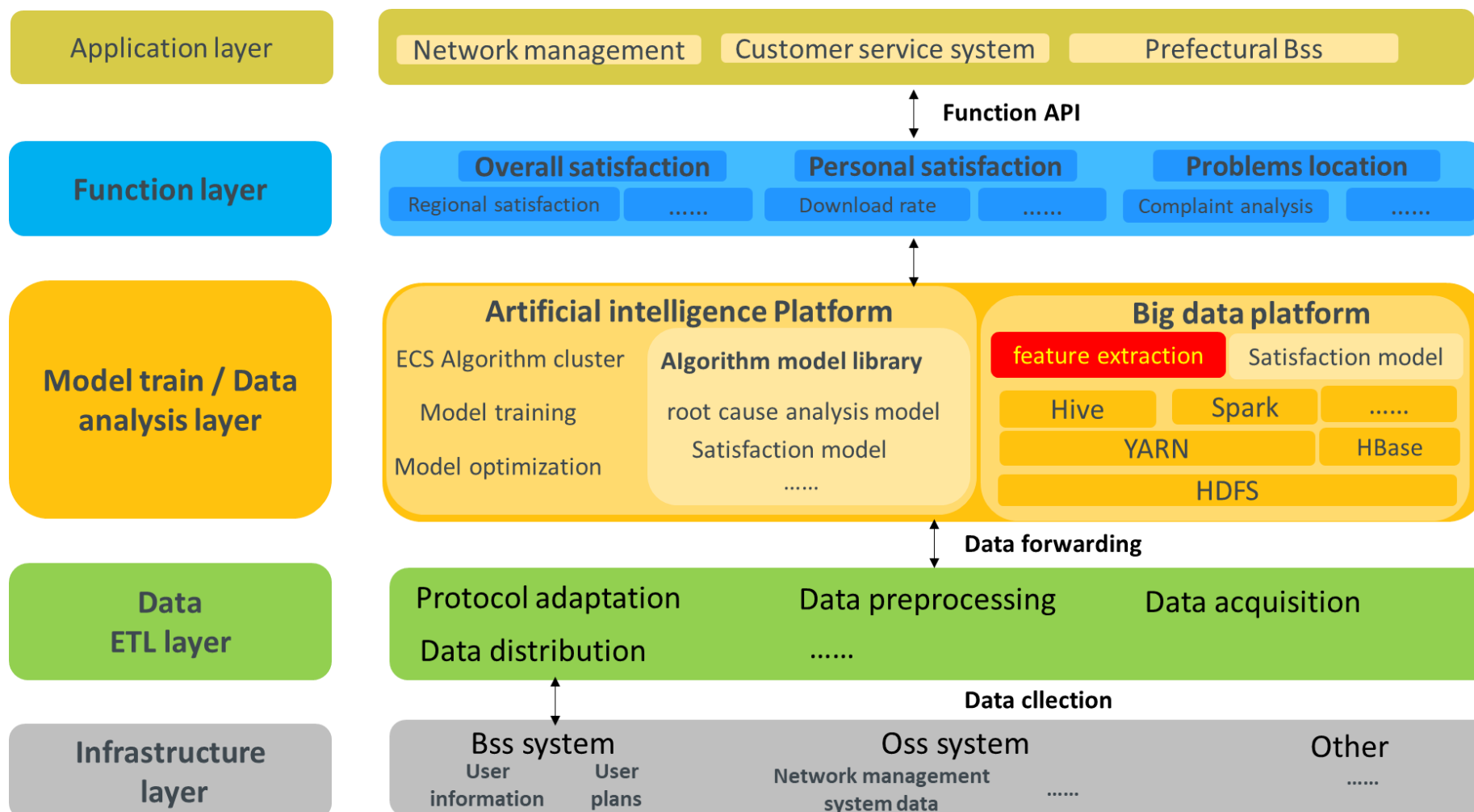**Step8:** Application layer implements capability call via functional API .

Figure : flow of information

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Optimization of PoC architecture

The architecture of POC was optimized. The feature extraction function block was added in the big data platform. As show the red function block.

Promotion of PoC application

The successful practice of PoC in Chongqing has promoted operators' interest. The following figures show the promotion situation in Guizhou Province. The main construction contents include the analysis of satisfaction of family broadband, the analysis of end-to-end quality of business and the analysis of Internet TV.
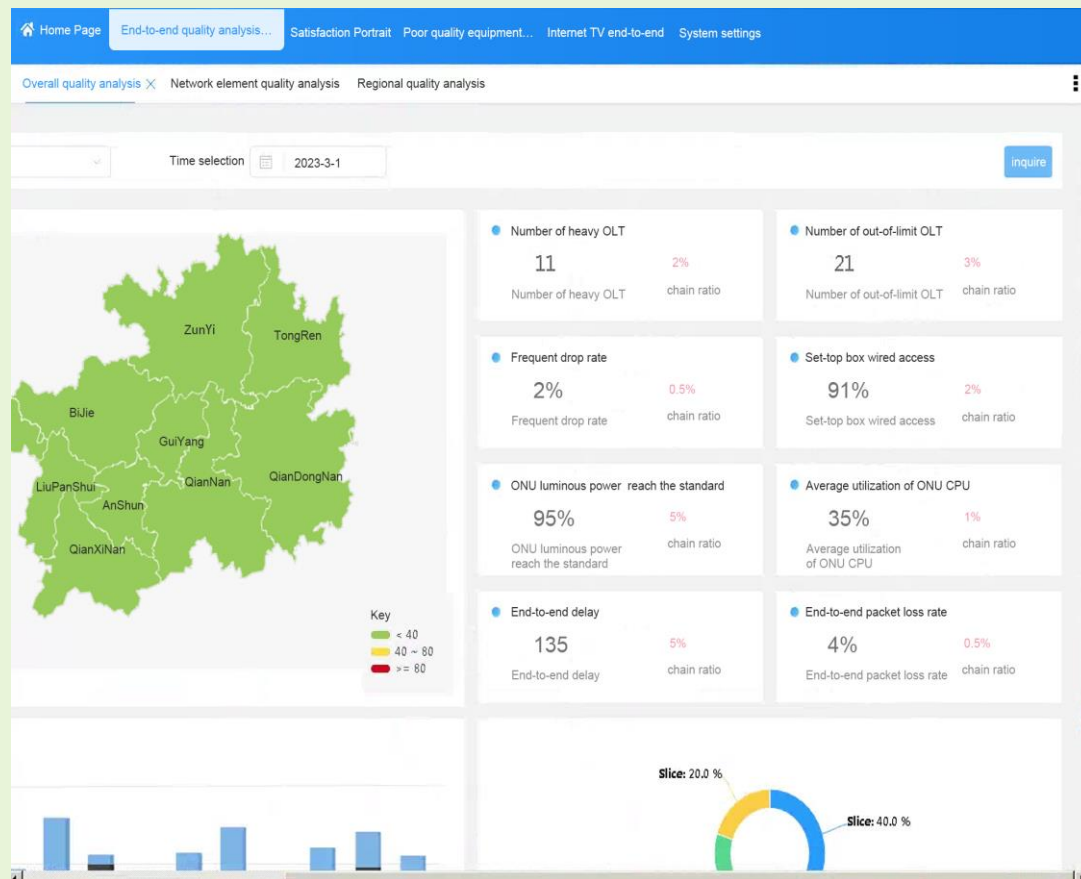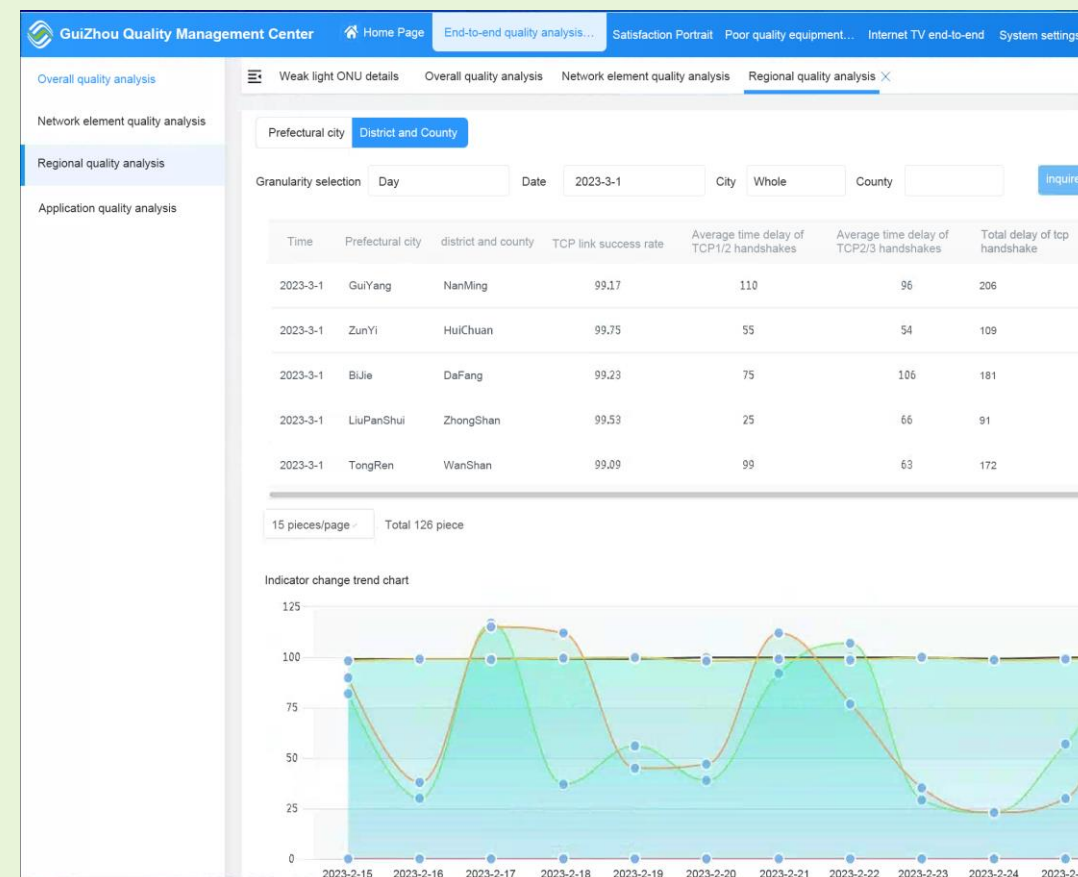

Figure: Overall quality analysis

Figure: Regional quality analysis

Promotion of PoC application

The dashboard shows user's personal package information, network information and experience rating information.
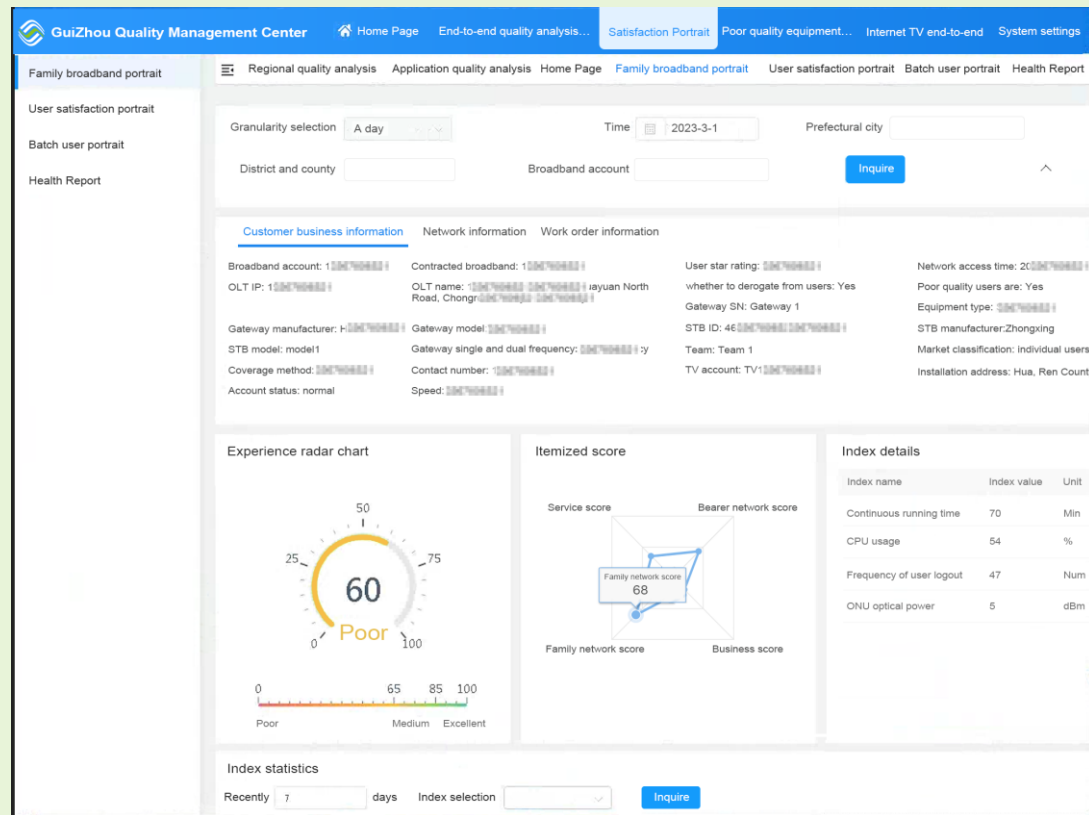

Figure User satisfaction portrait

The dashboard shows the business operation trend information of Internet TV network hardware equipment, etc.
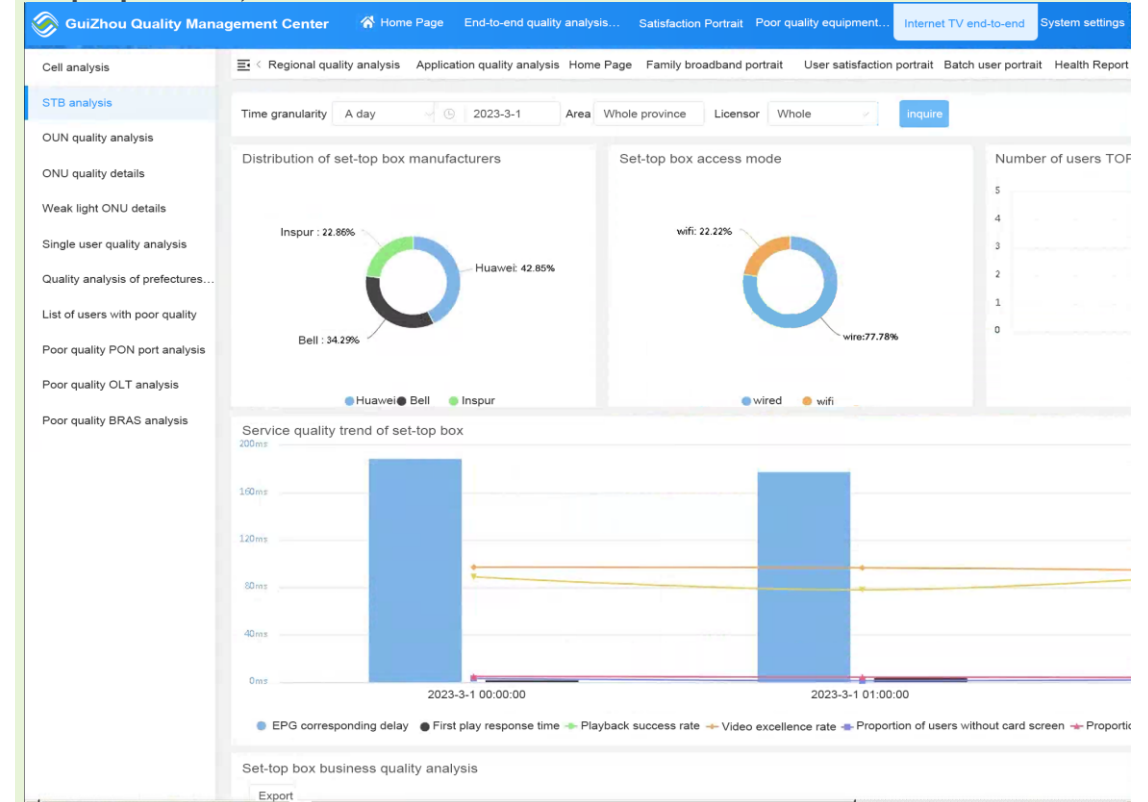

Figure Internet TV terminal satisfaction

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