Backend proxy 서버 구현

(nodejs + ncloud server)

주제

주사위 놀이 Play 개발

I. Backend proxy 서버 셋팅 (CentOS 7.3 기반)

- 아래 순서를 따라 환경을 셋팅해 주세요. (Naver Cloud 서버 생성 선행 필요)
 - ① 터미널을 이용해 Backend proxy 서버 접속 (포트 포워딩 설정한 서버 접속용 공인 IP 및 포트 확인)
 - ② Workspace 폴더 생성 → mkdir workspace
 - ③ Workspace 폴더 이동 → cd workspace
 - ④ Node.js 다운로드 → curl -sL https://rpm.nodesource.com/setup_12.x | sudo bash -
 - ⑤ Node.js 설치 → sudo yum install nodejs
 - ⑥ Node.js 설치 확인 → node --version 및 npm --version
 - ① 샘플 소스 다운로드 (주사위 놀이)→ git clone https://github.com/SeyoungKwon1986/nugu-play-sample-source.git
 - ⑧ 샘플 소스 폴더 이동 → cd nugu-play-sample-source
 - ⑨ Npm 설치 → npm install
 - ⑩ 웹서버 실행 → node app.js → 서버 구동 확인 (Server is running on 3000 port 출력 확인)

I. Backend proxy 서버 셋팅 (CentOS 7.3 기반)

```
_ 0 %

    root@nuguplay:~/nugu-play-sample-source

           565
                       0 Feb19 ?
                                         00:07:41 /usr/sbin/sshd
root
root.
           728
                       0 Feb20 ?
                                         00:00:26 [kworker/0:0H]
           799
                                         00:00:00 /sbin/dhclient -H nuguplay -1 -q
root
                       0 Feb19 ?
                                         00:02:11 /bin/bash /usr/sbin/xe-daemon -p
           943
                       0 Feb19 ?
root
nbpmon
          1345
                       0 Feb19 ?
                                         00:00:00 /home1/nbpmon/noms/nsight/bin/no
                                         00:56:15 /home1/nbpmon/noms/nsight/bin/no
nbpmon
         1347
                       0 Feb19 ?
                1345
          9036
                                         00:00:04 [kworker/u30:0]
root
                       0 Jul14 ?
                                         00:00:03 [kworker/u30:2]
root.
         11397
                       0 Jul04 ?
root
         18825
                       0 Jun03 ?
                                         00:00:13 [kworker/0:2H]
         20384
                       0 15:30 ?
                                         00:00:00 [kworker/0:0]
root.
                                         00:00:00 [kworker/0:1]
         23221
                       0 16:40 ?
root
         23621
                       0 16:50 ?
                                         00:00:00 [kworker/0:2]
root
                                         00:00:00 sleep 60
root
         23698
                943
                       0 16:51 ?
                 565
                                         00:00:00 sshd: root@pts/0
         23699
                      1 16:51 ?
root
         23701 23699 0 16:51 pts/0
                                         00:00:00 -bash
root
         23719
                       0 16:51 ?
                                         00:00:00 /usr/sbin/abrt-dbus -t133
root.
                                         00:00:00 ps -ef
root
         23741 23701 0 16:51 pts/0
[root@nuguplay ~]# ls
                                       nuqu-play-sample-source workspaces
nugu-play-audioplayer-sample-source oauth2-server
[root@nuguplay ~]# cd nugu-play-sample-source/
[root@nuguplay_nugu=play-sample-source] # node app.js
Server is running on 3000 port
```

I. 샘플 코드 app.js - express를 통한 app 생성

```
const express = require('express');
   const cookieParser = require('cookie-parser');
   const bodyParser = require('body-parser');
   const morgan = require('morgan');
   const {SERVER PORT} = require('./config.js');
   const routes = require('./routes');
  const app = express();
  app.use(bodyParser.json())
   app.use(morgan('common'));
   app.use((err, req, res, next) => next());
   app.use('/', routes);
app.use((req, res, next) => {
     const err = new Error('Not Found');
     err.status = 404;
     next(err);
   });
   app.listen(SERVER_PORT, () => {
     console.log(`Server is running on ${SERVER PORT} port`);
```

I. 샘플 코드 nugu/index.js – nuguReq 함수 정의

```
82
    const nuguReq = function (httpReq, httpRes, next) {
      npkResponse = new NPKResponse()
83
84
      npkRequest = new NPKRequest(httpReq)
      npkRequest.do(npkResponse)
85
      console.log(`NPKResponse: ${JSON.stringify(npkResponse)}`)
      return httpRes.send(npkResponse)
87
88
    };
    module.exports = nuguReq;
```

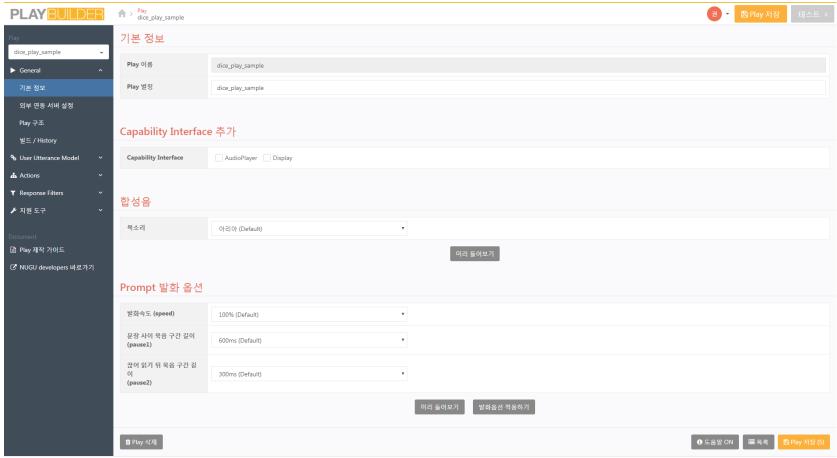
I. 주사위 놀이 Play 스펙

- Web URL: http://[nodejs 실행 서버의 IP]:3000/nugu (https 사용 시 SSL 인증서 구매 필요)
- 처리 가능 Action 및 Backend parameter 항목
 - 예상 발화 : 주사위 3개 굴려줘 / 주사위 던져줘
 - Action : ThrowDiceAction
 - Utterance parameters
 - diceCount (Entity Type : BID_QT)
 - Backend parameters
 - sum : 주사위 총합
 - midText : 주사위 결과 상세
 - Prompt Output : {{diceCount}}개의 주사위를 던집니다. 결과는 {{midText}}이며 합은 {{sum}}입니다. 다시 던지시려면 "주사위 3개 굴려줘" 와 같이 말해보세요.

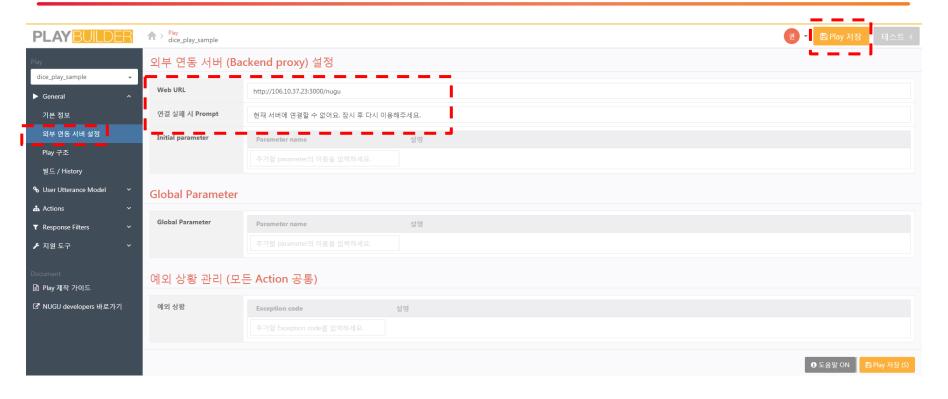
I. Play Builder – Play 생성



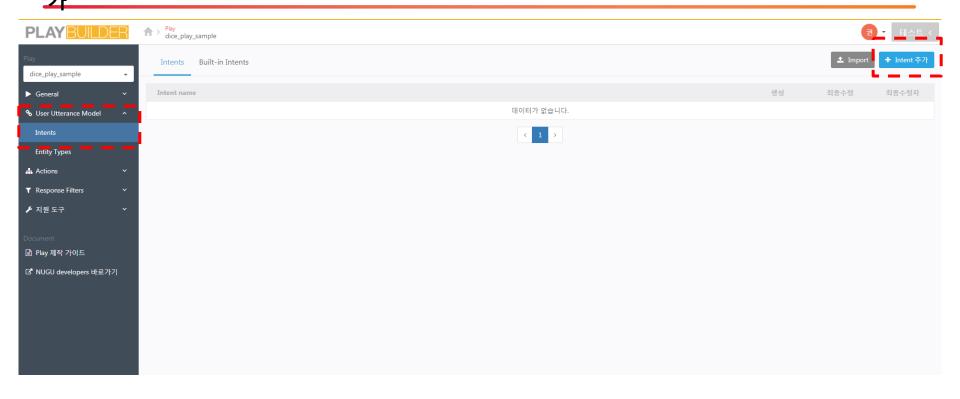
I. Play Builder – 기본 정보



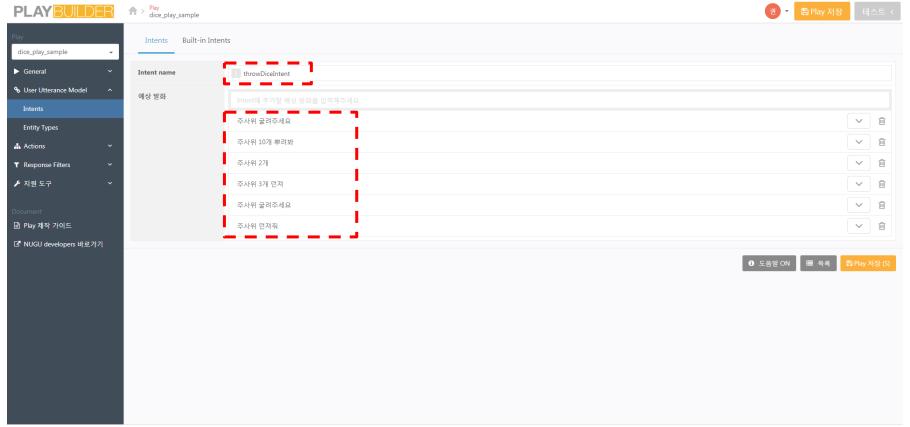
I. Play Builder - 외부 연동 서버 설정



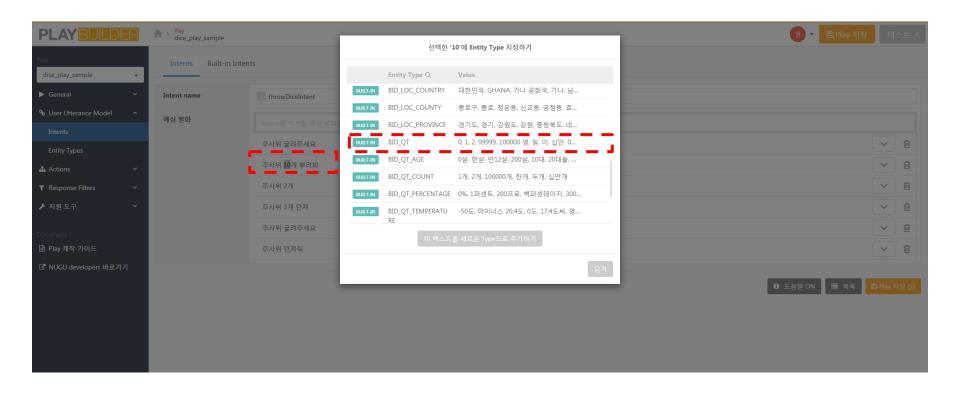
I. Play Builder – User Utterance Model ▶ Intent 추



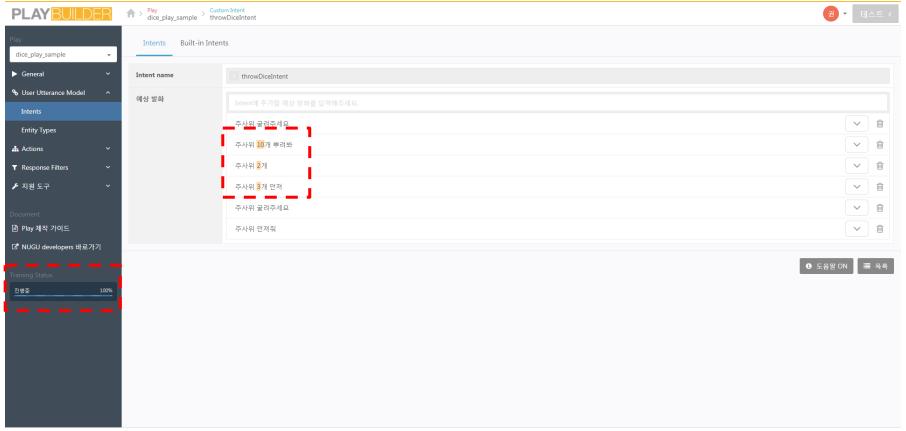
I. Play Builder – User Utterance Model ▶ 예상 발화 입



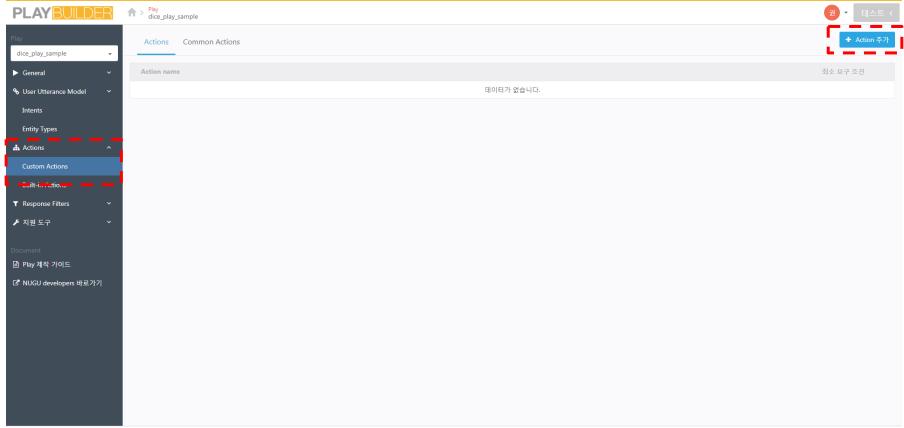
I. Play Builder – User Utterance Model ▶ Entity Type 정의



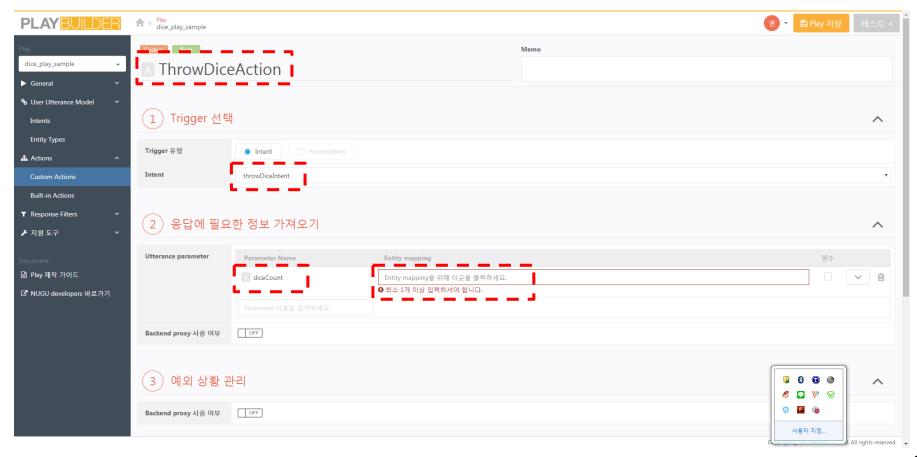
I. Play Builder – User Utterance Model ▶ Entity Type 정의



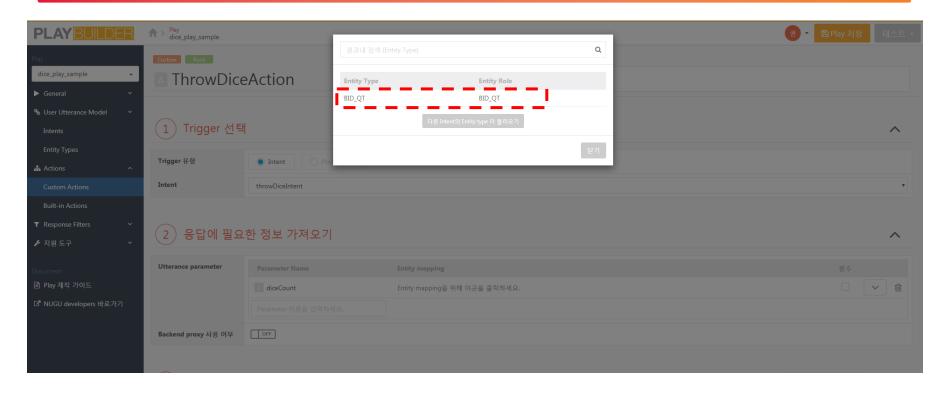
I. Play Builder - Custom Action ▶ Action 추가



I. Play Builder – Custom Action ▶ Action 정의



I. Play Builder – Custom Action ▶ Utterance parameter 정의



I. 샘플 코드 nugu/index.js – NPKRequest 클래스 정

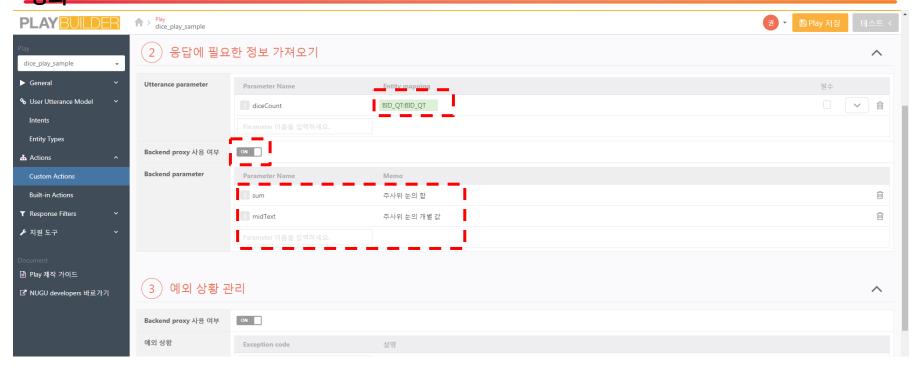
```
class NPKRequest {
  constructor (httpReq) {
    this.context = httpReq.body.context
    this.action = httpReq.body.action
    console.log(`NPKRequest: ${JSON.stringify(this.context)}, ${JSON.stringify(this.action)}`)
}

do(npkResponse) {
    this.actionRequest(npkResponse)
}
```

I. 샘플 코드 nugu/index.js – actionRequest 함수 정의

```
console.log('actionRequest')
console.dir(this.action)
const actionName = this.action.actionName
const parameters = this.action.parameters
switch (actionName) {
case 'ThrowDiceAction' | 'ThrowYesAction':
  let diceCount = 1
  if (!!parameters) {
   if (parameters.length != 0 && diceCountSlot) {
      diceCount = parseInt(diceCountSlot.value)
    if (isNaN(diceCount)) {
      diceCount = 1
  npkResponse.setOutputParameters(throwResult)
  break
```

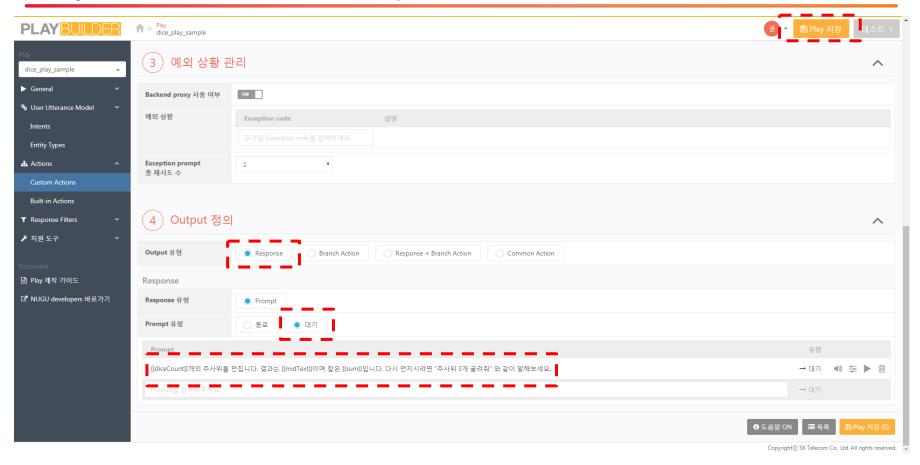
I. Play Builder – Custom Action ▶ Backend parameter parameter 정이



I. 샘플 코드 nugu/index.js – throwDice 함수 정의

```
function throwDice(diceCount) {
      const results = []
      let midText = ''
      let resultText = ''
      let sum = 0
      console.log(`throw ${diceCount} times`)
10
11
      for (let i = 0; i < diceCount; i++) {</pre>
12
        const rand = Math.floor(Math.random() * 6) + 1
13
        console.log(`${i + 1} time: ${rand}`)
14
        results.push(rand)
15
        sum += rand
16
        midText += `${rand}, `
17
18
19
      midText = midText.replace(/, $/, '')
      return {midText, sum, diceCount}
20
```

I. Play Builder – Custom Action ▶ Output 정의



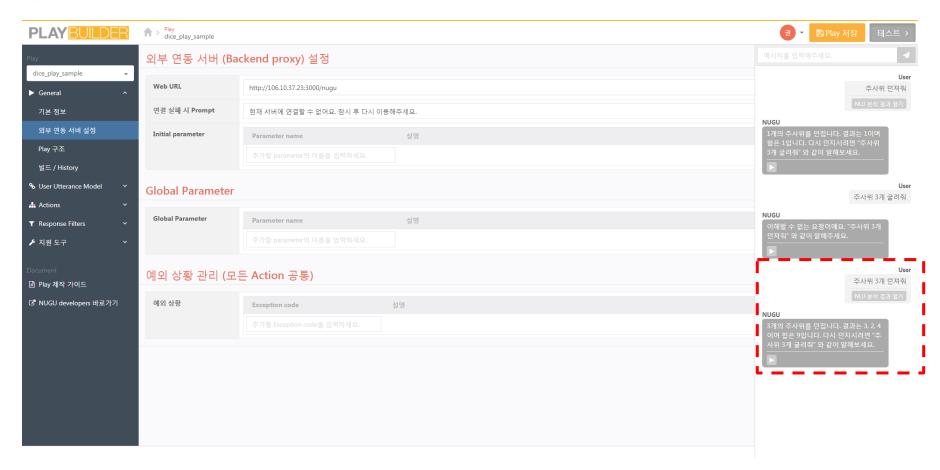
I. 샘플 코드 nugu/index.js – actionRequest 함수 정의

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console.log('actionRequest')
console.dir(this.action)
const actionName = this.action.actionName
const parameters = this.action.parameters
switch (actionName) {
case 'ThrowDiceAction' | 'ThrowYesAction':
 let diceCount = 1
 if (!!parameters) {
    const diceCountSlot = parameters.diceCount
    if (parameters.length != 0 && diceCountSlot) {
      diceCount = parseInt(diceCountSlot.value)
    if (isNaN(diceCount)) {
      diceCount = 1
  const throwResult = throwDice(diceCount)
  npkResponse.setOutputParameters(throwResult)
  break
```

I. 샘플 코드 nugu/index.js – NPKResponse 클래스 정의

```
class NPKResponse {
  constructor () {
   console.log('NPKResponse constructor')
   this.version = '2.0'
   this.resultCode = 'OK'
   this.output = {}
   this.directives = []
 setOutputParameters(throwResult) {
      diceCount: throwResult.diceCount,
      sum: throwResult.sum,
     midText: throwResult.midText,
```

I. Play Builder - 테스트



I. 서버 로그 확인 – 테스트

```
PuTTY (inactive)
actionRequest
{ actionName: 'ThrowDiceAction', parameters: {} }
throw 1 times
1 time: 1
NPKResponse: {"version":"2.0","resultCode":"OK","output":{"diceCount":1,"sum":1,
::ffff:223.39.126.223 - - [22/Jul/2019:08:28:29 +0000] "POST /nugu/ThrowDiceActi
NPKResponse constructor - - - - -
NPKRequest: {"session":{"isPlayBuilderRequest":true,"id":"b772ccc9-82c7-4cb7-987
1-31c3d24ab8a4","isNew":true},"supportedInterfaces":null,"device":{"type":"speak
er","state":{}}}, {"actionName":"ThrowDiceAction","parameters":{"diceCount":{"ty
pe":"BID QT","value":"3"}}}
actionRequest
 actionName: 'ThrowDiceAction',
  parameters: { diceCount: { type: 'BID QT', value: '3' } } }
throw 3 times
1 time: 3
2 time: 2
3 time: 4
NPKResponse: {"version":"2.0","resultCode":"OK","output":{"diceCount":3,"sum":9,
"midText":"3, 2, 4"},"directives":[]}
::ffff:223.39.126.223 - - [22/Jul/2019:08:40:15 +0000] "POST /nuqu/ThrowDiceActi
on HTTP/1.1" 200 104
```

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